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FRIENDSHIP AND AUTISM: A MULTIPLE CASE STUDY ECOLOGICAL EXPLORATION OF STUDENT, TEACHER, AND PEER FACTORS RELATING TO THE SOCIAL NETWORK AND FEELINGS OF LONELINESS OF STUDENTS WITH AUTISM SPECTRUM DISORDER IN GENERAL EDUCATION ELEMENTARY CLASSROOMS

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DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for degree of Doctor of Philosophy in the
College of Education
at the University of Kentucky

By

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ABSTRACT OF DISSERTATION

FRIENDSHIP AND AUTISM: A MULTIPLE CASE STUDY ECOLOGICAL EXPLORATION OF STUDENT, TEACHER, AND PEER FACTORS RELATING TO THE SOCIAL NETWORK AND FEELINGS OF LONELINESS OF STUDENTS WITH AUTISM SPECTRUM DISORDER IN GENERAL EDUCATION ELEMENTARY CLASSROOMS

The number of children diagnosed with an autism spectrum disorder (ASD) who are being served in the public school system has increased dramatically in recent years. During an increased focus on inclusion within education, research shows that students with ASD educated in the general education classroom generally do not have as many friends as their peers without ASD. However, some students with ASD are found to have more friends than other students with ASD. Therefore, additional research must explore potential factors that may be influencing the success with which students with ASD form friendships within the general education classroom. Using a multiple case study ecological approach, this study examines child, peer, and general education teacher factors related to the friendship patterns of three male students with ASD in fourth or fifth grade general education classrooms. Results from this study indicate that consistent with previous research, some students with ASD are found to be more socially embedded within the social network of the general education classroom and report greater levels of social satisfaction than other students with ASD. Findings suggest that for the three participants within this study, having two solid friendships, regardless of the social status of the friends of the student with ASD, may be related to a higher level of social network status and lower levels of self-reported loneliness for students with ASD. Factors that were found to be important for the three target students in this study included quality of social skills, quality of friendship, understanding of the construct of friendship, and general education teacher experience level. Factors that were found to be less important for the three target students in this study included peer attitudes towards children with disabilities, teacher attitudes towards inclusion of students with autism, teacher knowledge of autism, and teacher knowledge and use of evidence-based practices. Possible explanations for these findings, as well as limitations, directions for future research, and implications are discussed.

KEYWORDS: Autism, Social Network, Social Skills, General Education Teacher, Peers

Jessica L. Birdwhistell

Student's Signature

04/25/2015

Date

FRIENDSHIP AND AUTISM: A MULTIPLE CASE STUDY ECOLOGICAL EXPLORATION OF STUDENT, TEACHER, AND PEER FACTORS RELATING TO THE SOCIAL NETWORK AND FEELINGS OF LONELINESS OF STUDENTS WITH AUTISM SPECTRUM DISORDER IN GENERAL EDUCATION ELEMENTARY CLASSROOMS

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TABLE OF CONTENTS

List of Tables

List of Figures

Chapter One

Introduction

Autism Spectrum Disorder

The last two decades witnessed increasing attention focused in the United States on what many claim to be an "autism epidemic" (Fombonne, 2001). In 2000, estimates suggested that 1 in 150 children were diagnosed with an Autism Spectrum Disorder (ASD). Most recently, the Center for Disease Control and Prevention reported an estimated 1 in 68 children are diagnosed with an ASD by the age of eight (Baio, 2014).

Autism Spectrum Disorder is a developmental disability that is characterized by persistent deficits in social communication and social interaction as well as restricted, repetitive patterns of behavior, interests, or activities (American Psychiatric Association [APA], 2013). These deficits have been found to impact all areas of the lives of individuals with ASD including their educational and social experiences (Eaves & Ho, 1997).

Education and Inclusion

Prior to 1975, children identified with a disability were educated primarily in special education classrooms, separate schools, or, in some cases, not at all (Jacob & Hartshorne, 2007; Messemer, 2010). The Education for All Handicapped Children Act ([EHA] P.L. 94-142) passed in 1975 and the subsequent reauthorizations leading to the Individuals with Disabilities Education Improvement Act ([IDEIA] 2004) created a gradual movement for including children with disabilities, whenever possible, in the least restrictive educational environment among typically developing peers. This shift included rapidly increasing numbers of students with ASD (United States Department of

Education [USDE], 2011) who in 1990, became recognized by public school systems as a specific disability category under the Individuals with Disabilities Education Act (IDEA, 1990).

The movement towards inclusion for students with ASD is grounded in sound theoretical foundations relating to social modeling (Bandura, 1977; 1986; 2007) and social constructivism (Vygotsky, 1967, 1978). Social modeling refers to the opportunity for individuals to imitate the behavior of socially competent models. Furthermore, social constructivism emphasizes the importance of the sociocultural context of learning and asserts that young children function as apprentices when they are "active in their efforts to learn from observing and participating with peers and more skilled members of their society" (Rogoff, 1990, p. 7). Some scholars assert that these social interactions enhance a child's skills and conceptual knowledge (Mallory & New, 1994).

With broader diagnostic criteria classifying autism as a spectrum disorder and improved diagnostic instruments, more students are being identified with high-functioning autism and Asperger's syndrome than before (APA, 2000). This increasing population of students with higher-functioning ASD often exhibits limited language delays and average to above average intelligence as compared to individuals with classic autism.

Nevertheless, students considered higher functioning in these areas still display significant deficits in social skills such as nonverbal behavior, theory of mind, emotional reciprocity, and social language. Given these unique strengths and challenges of students with higher functioning ASD, increased emphasis has been placed upon the education of students with ASD in the general education classroom whenever possible. It was

believed that education in the general education classroom, particularly for students with ASD, would not only provide them with access to the general academic grade-level curriculum, but more importantly, it would provide these students with access to typical peers and appropriate social models thought to increase social skills and social interaction (Boutot & Bryant, 2005; Chamberlain, Kasari, & Rotheram-Fuller, 2007; Eaves & Ho, 1997).

Importance of Social Experiences

Regardless of educational placement, positive social experiences at school are important for all students because they can impact areas such as sense of belonging and self-worth (Bagwell, Newcomb, & Bukowski, 1998), academic readiness and school involvement (Ladd, Kochenderfer, & Coleman, 1996), and emotional support and protection from loneliness, isolation, and rejection (Bollmer, Milich, Harris, & Maras, 2005; Parker & Asher, 1993). Positive social experiences at school become even more important for students with ASD who are at an increased risk for social rejection and isolation in the classroom as compared to peers without ASD due to the social, communication, and behavioral deficits inherent to the disability.

Given the social deficits inherent to individuals with ASD, the importance of social experiences, and the movement towards inclusion, researchers have begun placing more emphasis on examining the social experiences of students with ASD including the quantity and quality of friendships within the general education classroom. Findings thus far have yielded mixed results indicating that while students with ASD typically do not have as many friends as peers without ASD, some students with ASD may have more friends and may be more included in the social groups of the classroom than other

students with ASD (Chamberlain, 2001; Chamberlain, Kasari, & Rotheram-Fuller, 2007; Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011; Lee, 2008; Locke, Ishijima, Kasari, & London, 2010; Rotheram-Fuller, 2005; Rotheram-Fuller, Kasari, Chamberlain, & Locke, 2010). However, limited research has been conducted that examines potential factors that may help explain why some students with ASD have more friends and have more positive social experiences than other students with ASD.

Problem Statement

A child spends a large percentage of his/her time in school. Within this setting, children have an abundance of opportunities to interact with same-age peers and to develop social skills and social relationships, which is an important component of a child's educational experience and overall development. Given the increase in the diagnosis of children with ASD and an educational movement towards inclusion, researchers have begun examining the social relationships of students with ASD within the general education classroom.

Although research has consistently documented that students with ASD educated in the general education classroom typically have fewer friendships as compared to their peers, it also reveals that some students with ASD actually have a greater number of friendships than other students with ASD. Given that research supports that students with ASD can fit in socially through the formation of friendships, it is important to understand factors that may influence the development of social relationships of students with ASD in the general education classroom. This knowledge will inform researchers and practitioners to help ensure that factors found to influence the friendship formation of

students with ASD in the general education classroom are adequately addressed within an inclusive educational framework.

Theoretical Framework

In presenting a new model of human development in 1979, Uri Bronfenbrenner described the ecology of human development as one that:

> Involves the scientific study of the progressive, mutual accommodation between an active, growing human being and the changing properties of the immediate settings in which the developing person lives, as this process is affected by relations between these settings, and by the larger contexts in which the settings are embedded. (p. 5)

In seeking to understand the social experiences of children with ASD within a general education classroom, research should not be limited to studying only the child with ASD. Rather, one must use an ecological framework to look beyond the child's diagnosis of ASD to begin examining factors present in the child's proximal and distal environment that may be impacting his or her development of social relationships in the classroom.

The ecological framework proposed by Bronfenbrenner describes five distinct environmental levels (individual, micro-, meso-, exo-, and macro-) portrayed as concentric circles that may impact the development and experiences of an individual. In relating an ecological framework to the study of social experiences of children with ASD in general education classrooms, the first level specifically addresses the individual student. Characteristics pertinent to the individual include a diagnosis of ASD and the quality of the child's social skills. Additionally, the individual level includes the feelings

and perceptions of the child regarding his or her social experiences such as feelings of loneliness and characterizations of the dimensions of his or her friendships.

The next level, the microsystem, extends beyond the individual child with ASD and includes factors such as individuals present in the child's immediate environment. For this study, the immediate environment of the microsystem refers to the general education classroom in which the child with ASD is educated and the individuals present in this environment including peers and the general education teacher. Each individual within a given environment possesses his or her own set of past experiences, knowledge, and beliefs from which that person draws upon as active beings within that environment. Therefore, specific to this study, the past experiences, knowledge, and beliefs of peers and the general education teacher must be examined as these pertain specifically to the experiences of children with ASD within that environment.

The exosystem refers to environments that do not directly involve the individual as an active participant. Instead, it looks at environments in which events occur that impact the individual. In this study, the exosystem refers to the educational system that plays a role in determining the educational environment in which the student with ASD will be educated and the educational services received. Specifically, this study takes into consideration an educational movement towards the inclusion of students with ASD in the general education classroom. Interrelationships between the various factors in the microsysyem and the exosystem are known as the mesosystem. The macrosystem captures the overall cultural or societal environment such as belief systems or ideologies that impacts all other systems and the individual. In this study, the macrosystem refers to

overall societal beliefs towards individuals with disabilities and particularly individuals with ASD.

Summary and Implications

As expected, previous research documented that, due to deficits inherent to ASD, many students with ASD have fewer friends within the general education classroom as compared to peers without ASD. However, some students with ASD are found to have a greater number of friendships than other students with ASD. Therefore, this study builds upon previous research by examining factors that may contribute to the formation of friendships for students with ASD within the general education classroom and the perceptions of students with ASD in regard to their social experiences.

More specifically, the purpose of this study is to adopt an ecological framework through which to explore child, peer, and general education teacher factors that may contribute to the friendship development and perception of social experiences of students with ASD in third through fifth grade general education classrooms. This study's findings will provide a representation not only of the social relationships of students with ASD in the general education classroom, but also help to explore why differences in the social relationships and social experiences among students with ASD have been found. Using this information, an ecological framework can then be translated into the classroom through which various child, peer, and teacher focused interventions can be implemented to improve the overall social experiences of students with ASD at school.

Chapter Two

Literature Review

In this chapter I discuss the social relationships of students with ASD in the general education classroom by reviewing research regarding the measurement and findings of research utilizing social network analyses. An overview will be presented on research findings regarding child, peer, and general education teacher factors as it relates to the friendship formation and social experiences of students with ASD.

Importance of Social Relationships

Developmental psychologists have long understood that humans are social beings and generally possess an inherent need for social relationships (Crandell, Crandell, & Zanden, 2009). Positive social relationships are important for everyone because they can be potentially related to areas such as sense of belonging and self-worth (Bagwell et al., 1998), academic readiness and school involvement (Ladd et al., 1996), and emotional support and protection from loneliness, isolation, and rejection (Bollmer et al., 2005; Parker & Asher, 1993).

Friendship Development

School affords children the opportunity to interact regularly with a variety of different peers, which can serve differing purposes. The interactions can be functional, such as two children working together to complete an assignment, or they can be with the intent of forming social relationships, such as two children choosing to play together during recess (Rotheram-Fuller, 2005). While peer interactions are necessary in order to form friendships, they must also include dimensions such as the sense of reciprocal social

bonding including mutual intimacy, support, companionship, and affection in order to be sufficient in fostering such friendships (Freeman & Kasari, 2002).

Going from social interactions to actual friendship development has been found to be very important for children. Friendship development can influence other areas of development (Berndt, 1998), provide social models, and help form one's identity (Ladd et al., 1996). Furthermore, friendship development provides children with the immediate opportunity to benefit from companionship while providing children with the long-term opportunities of lasting interpersonal competence.

Friendship and ASD

Within inclusive educational settings, students with ASD are at increased risk for experiencing social problems such as social anxiety, isolation, and feelings of rejection. Studies have shown that one of the best predictors of the development of social relationships is proximity (Brehm, Kassin, & Fein, 1999). This suggests that including students with ASD in the general education classroom should, in turn, increase their social relationships, particularly with peers without disabilities. However, research also suggests that the physical placement of students with ASD in general education classrooms with peers without ASD, in and of itself, is not a sufficient means of increasing social relationships (Myles, Simpson, Ormsbee, & Erickson, 1993).

Social Network

To understand better the social relationships of children within the context of larger groups, researchers are now using various means to study social network. For the purpose of this study, social network is defined as "the social position of individuals and their peer groups relative to other individuals and peer groups within a broader social

system (e.g., classroom)" (Farmer & Farmer, 1996, p. 433). Social network analysis allows researchers to expand upon discrete dyadic relationships such as mutual friendships involving two people to study relationships that exist among larger groups (Hanish & Rodkin, 2007). The study of groups enables a closer examination of the size and density of peer networks, the centrality of individuals within a larger network, the various structural configurations that comprise social groups, and the individuals who constitute different social network (Hanish & Rodkin, 2007).

To date, social network research with children has focused primarily on the educational realm because the school setting allows access to large groups of children and accounts for the significant amount of time spent at school where many friendships with same-aged peers are formed (Kasari et al., 2011). Given the unique characteristics of individuals with ASD and an educational movement towards inclusion, social network research has begun to focus on examining the social network status of children with disabilities, and particularly children with ASD included in the general education classroom. The unique characteristics associated with ASD have been found to make the development of friendships with typical peers more difficult for children with ASD (APA, 2000; McConnell, 2002).

Direct observation.

The three key methods of data collection that have been used to capture the social networks of children are researcher direct observation, interviews with caregivers, teachers, and/or children, and the completion of surveys and questionnaires by children, caregivers, and/or teachers. In using researcher direct observation to examine social networks of children, various intervals of momentary time sampling have been used

during recess and/or classroom time to observe interactions between children to target and categorize specific pre-defined play and relationship behaviors.

Some researchers argue that it is necessary to obtain these concrete objective observations of children's tendency to interact with one another in order to truly understand the dynamic of friendships and group social structure (Hanish et al., 2007). However, other research has found high levels of consistency between researchers' observed patterns of peer interaction and children's reports (Cairns, Perring, & Cairns, 1985; Gest, Farmer, Cairns, & Xie, 2003). In light of these findings, there is evidence to suggest that researcher direct observation is not necessary in order to obtain an accurate understanding of friendships and social network among children with and without ASD.

Interview.

The second general method of data collection of social network of children has focused on interviews with caregivers, teachers, and/or children. The majority of research using interviews has also incorporated other methods, such as behavior observations and questionnaires, to supplement the nature of the information obtained regarding friendships and social network. While behavior observations and questionnaires are able to identify relationships and social networks, interviews are more often able to tap into the complex nature of these friendships and social networks by exploring dimensions of quality, context, and degree of social support of given relationships (Lyles, 1996).

For example, Morganstein (2001) examined peer relations and self-perceptions of boys three to eight years of age with behavioral problems using the Quality of Children's Friendship Interview completed with the target children as well as the primary guardian

and teacher of the target children. This interview format examined the various informant perceptions of the child's friendships and peer relations. These data were aggregated with friendship survey data to acquire a representation of the social network of boys with behavioral problems.

A particular strength of interviews in the field of social science research is the abundance of rich qualitative data obtained, particularly when multiple informants are interviewed (Leech & Onwuegbuzie, 2008). The primary challenge of the interview method is the labor and time intensive nature of collecting all of these rich qualitative data on such a large scale (Cillessen, 2007; Rodkin & Ahn, 2008). Several studies note the time-intensive nature as a limitation when collecting social network data while other studies ultimately administered the interview protocol as a questionnaire due to time constraints (Morganstein, 2001; Richardson, 1996). Additionally, due to the time-intensive nature, often only the target child or adults associated with the target child are interviewed, omitting the perceptions and experiences of the peers of the target child. This approach undermines the understanding of the reciprocal nature of friendship and social networks (Fletcher, Hunter, & Eanes, 2006; Lyles, 1996; Morganstein, 2001).

Surveys-caregivers.

The third and most common data collection method relies on the completion of surveys and questionnaires. One population with whom these instruments have been used is with the caregivers of target children whose social relationships are being studied. Research using these questionnaires has obtained information based on caregiver perspective relative to whom their child "hangs out with" and how often. For example, one study explored the home-based peer social networks of young children with Down

syndrome through completion of the Social Contact Questionnaire by the mothers of 27 children with Down syndrome and mothers of typically developing children (Guralnick, Connor, & Johnson, 2009). Information obtained included the identification of social contacts with playmates within a designated time period, specific characteristics of each identified playmate, and measures of the quality of the relationship between the focal child and the playmate.

There are obvious advantages for including caregiver perspective in the research of friendship and social network of children. One such contribution is being cognizant that the caregiver perspective is always an important consideration in the ecological study and understanding of children (Bronfenbrenner, 1977). The caregiver perspective, as a secondary source of data in addition to the child's perspective, can offer additional insight into the way in which children's caregivers conceptualize their child's friendships and the value they place on the quantity and quality of these reported friendships (Chamberlain et al., 2007).

Surveys-teachers.

Research has also examined teacher perspectives of classroom social relationships and social networks through questionnaires using specific measures such as the Teacher Social Network Questionnaire. For example, Gularnick, Connor, and Johnson (2011) examined the peer social networks of young children with Down syndrome in the classroom through the administration of the Teacher Social Network Questionnaire to classroom teachers of 27 children with Down syndrome and two comparison groups of typically developing children. Information obtained from this measure included teacher

perspective regarding the primary children with whom the target child plays regularly and also measures the frequency and quality of those play interactions.

A strength of the teacher completed social network questionnaires is recognizing that classroom teachers spend the majority of their day instructing and working with their students. Theoretically, teachers have some of the best and most frequent opportunities to observe the friendships and social networks that are formed among their students in the classroom (Gest & Rodkin, 2011). Moreover, because teachers play such an important role in the social development of children in their classrooms, it can be important to understand the teacher perspective of friendships and classroom social network, particularly when studying the relationships of students with disabilities (Cairns & Cairns, 1994; Guralnick et al., 2011).

While obtaining caregiver and teacher reports on measures of friendship and social networks have potential benefits, both methods share similar weaknesses and limitations that have restricted the use of these instruments in social network research with children. Although both teachers and caregivers spend significant time with the target child and/or their peers, the underlying limitation is that caregiver and teacher perspectives are not equivalent to the child perspective. Not only is the perspective of the target child missed, but the perception of the peers being considered as possible friends is omitted, disregarding the reciprocal nature of friendships and social networks.

Surveys-children.

Because of these methodological limitations, much of the social network research with children utilizing questionnaires has focused on the completion of questionnaires by the children whose relationships we seek to understand. While there are many

questionnaire methods that have been used with children in general, the body of research on social network with children with ASD to date has primarily utilized the Friendship Survey (Cairns & Cairns, 1994; Chamberlain, 2001; Chamberlain et al., 2007; Kasari et al., 2011; Lee, 2008; Locke, Ishijima, Kasari, & London, 2010; Rotheram-Fuller, 2005; Rotheram-Fuller, Kasari, Chamberlain, & Locke, 2010).

This Friendship Survey is administered to each student in the classroom who has provided consent. Students are asked to list all children in their class with whom they like to "hang out." Based on their responses, students are then asked to circle the names of the three children they most like to hang out with and to place a star next to the name of the one child with whom they most like to hang out. Additionally, students are asked to list any children whom they do not like to hang out with. Finally, each student is then asked to list children in the class who like to hang out together, listing as many groups of boys and girls, including the child completing the form, that exist within the classroom.

The data are aggregated and provide essential information on self-reported reciprocal friendships, peer groups of students in the classroom, and levels of social network status for each child as nuclear, secondary, peripheral, or isolated status. A particular strength of this method is the insight it offers into the self-reported perception of friendships of children in the classroom. Moreover, this method provides information on specific social network status and differentiates between levels such as peripheral and isolated and has the potential to differentiate between children who are neglected and those who are rejected.

A majority of the previous research utilizing the Friendship Survey to assess social networks of students with ASD in the general education classroom offers

promising results. For example, Chamberlain (2001) analyzed the social networks of 14 students with ASD and their peers in second through fourth grade general education classrooms. Results indicated that generally students with ASD were no more isolated than their typical peers. Some students with ASD were even more centrally involved within the classroom social structure, indicating that they had at least some reciprocal friendships.

Other studies have shown similar results among students with ASD in elementary general education classrooms. Overall, while students with ASD are not as centrally involved as their peers without ASD within the social network of the classroom, few are found to be isolated and some are even found to be central to the social network (Chamberlain et al., 2007; Kasari et al., 2001; Lee, 2008; Rotheram-Fuller, 2005; Rotheram-Fuller et al., 2010). However, the social involvement of children with ASD in the general education classroom was found to differ based on grade level; for example, children with ASD in lower elementary grades were found to be more socially included than children with ASD in upper elementary grades (Chamberlain et al., 2007; Rotheram-Fuller et al., 2010).

On average, roughly half of students with ASD educated primarily in the general education classroom are found to be peripheral or secondary within the social network. Cumulatively, these findings suggest that although students with ASD have social deficits that are inherent to their disability and often do not fit in as well as their peers, students with ASD can fit in and some are found to fit in better than others.

Child Factors

Quality of social skills.

Research has continuously documented that students with ASD can develop friendships and be involved in the social structure of the general education classroom. Therefore, consistent with an ecological approach, further research is needed that explores possible factors, beyond a diagnosis of ASD, that may influence the friendship formation and level of involvement of students with ASD in the social structure of the classroom. Social skills can be understood as socially acceptable learned behaviors that enhance an individual's ability to interact effectively with others and to minimalize social responses that are viewed as unacceptable (Gresham & Elliott, 1990). While social skills have been found to develop appropriately over time for most children in relationship to age, it has been well established that children with ASD possess inherent social deficits regarding social interactions and relationships. These social deficits have been found to include initiation of social interactions with others, emotional behavior, social reciprocity, maintenance of eye contact, shared enjoyment, empathy, and the ability to detect the interests of others (APA. 2000).

To understand the quality of a child's social skills and generate appropriate instructional strategies relative to those skills, various means of assessment have been developed including behavior observations, behavior rating scales, interviews, and self-report. However, due to limitations regarding a child's age and cognitive abilities, as well as limitations regarding time and resources, behavior rating scales have become the most common means of assessing a child's social skills (Wang, Sandall, Davis, & Thomas, 2011).

Within behavior scales, the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) has been found to effectively differentiate groups of children based on various special education classifications (Stinnett, Oehler-Stinnett, & Stout, 1989), be technically adequate (Bracken, Keither, & Walker, 1994), and comprehensive (Demaray et al., 1995). This measure has also been used to specifically assess the quality of social skills of children with ASD (Koning & MaGill-Evans, 2001; Macintosh & Dissanayake, 2006).

The SSRS contains both parent and teacher versions of the rating scale which allows for a comprehensive understanding of the child's social skills across settings. Parents often have a more personal relationship with their own child and a developmental perspective of that child's social skills over time. Teachers also have a thorough understanding of the child's social skills, specifically as they relate to the interactions with peers and in comparison to the quality of social skills of peers without disabilities. Thus, while the ratings of the quality of social skills of children with ASD may differ between parents and teachers, combining their perspective by linking their information together can provide a more comprehensive understanding of the child's social skills across settings.

To specifically address these inherent deficits, information obtained from social skills assessment of children with ASD has been used to develop and implement many child-centered interventions such as direct social skills training (Bellini, Peters, Benner, & Hopf, 2007; Rao, Beidel, & Murray, 2008; Williams-White, Koenig, & Scahill, 2007). It is hypothesized that by addressing the social deficits of students with ASD directly through individual or group instruction, students with ASD can generalize these skills to

interactions with peers in hopes of having positive interactions with peers and forming friendships. However, given that students with ASD have difficulty with the generalization of skills acquired in isolated settings, even if a student acquires increased social skills within an individual or small group setting, without further supports it can be very difficult to translate these skills into larger group settings such as the general education classroom (Bellini et al., 2007; Rao et al., 2008; Williams-White et al., 2007).

Research has been conducted that examines the impact of targeted interventions on the quality of social skills of children with ASD. However, little research has examined the impact that the quality of social skills of the child with ASD, in turn, has on the actual development of friendship and social network status within the general education classroom. One study compared the outcomes of elementary aged students who participated in child-only social skills intervention, peer-assisted intervention, a combination of child-only and peer-assisted interventions, or no intervention at all (Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012). The quality of social skills was found to increase for children with ASD in both the child-only and peer-assisted interventions. Significant improvements were found in the social network salience, number of friendship nominations received, and isolated play on the playground. However, these improvements were found only among the children with ASD who participated in the peer-assisted intervention.

Even within the limited research that examines the relationship between quality of social skills and social network status, questions remain. Although students with ASD who participated in the peer-assisted intervention were nominated more frequently by peers as friends, the children with ASD did not show any increase in the number of

children they reported as their friend. These findings suggest that students with ASD may lack an accurate understanding of friendship as it relates to their ability to form and identify friendships. While an increase in friendship nominations towards students with ASD is positive, it should also be desired that students with ASD strive to increase their number of outward friendship nominations.

These findings may also suggest that the perspective of the child with ASD regarding friendships and social experiences should be considered. While increasing the quality of social skills is important for long-term success in regard to employment and independence, understanding the feelings of loneliness and the desire for friendship of students with ASD will help ensure that we develop an accurate understanding of the needs and desires of each individual with ASD as it pertains to social relationships and social inclusion. Results from this study suggest that an ability to include peers without ASD in social interventions for children with ASD may also have a positive impact on the typical peers in their understanding of individual differences and their willingness to nominate children who may be "different" as friends. Additional research is needed that considers the thoughts and experiences of children without ASD regarding children who may be perceived as different.

Understanding of friendship.

In regard to friendship formation between students with ASD and peers, research has consistently documented a discrepancy between the number of friends reported by children with ASD and the number of times children with ASD are reported as friends by their typical peers (Bauminger & Kasari, 2000; Bauminger et al., 2008; Carrington & Graham, 2001; Carrington, Templeton, & Papinczak, 2003; Chamberlain, 2001;

Chamberlain, Kasari, & Rotheram-Fuller, 2007; Locke, Ishijima, Kasari, & London, 2010; Rotheram-Fuller, 2005). Children with ASD generally report classmates as friends, whereas, classmates who are nominated as friends by their peers with ASD generally do not reciprocate the friendship nomination to these children with ASD. Similarly, children with ASD may be reported as friends by their peers but do not reciprocate the report of these friendships (Kasari et al., 2011; Lee, 2008).

These discrepancies may suggest that even if students with ASD develop the skills necessary to form friendships, they may also need direct instruction on the features of friendships commonly identified among children without disabilities. Without an understanding of the features of friendship, children with ASD may continue having difficulty identifying friendship-seeking behaviors of others or fulfilling the characteristics necessary in a reciprocal friendship. The Friendship Qualities Scale (Bukowski, Hoze, & Boivin, 1994) was developed to compile the common features of friendship identified by researchers and children without disabilities. The FQS assesses the common features of companionship, conflict, help, security, and closeness of one self-identified friendship. This measure has been used in examining the friendship patterns of children with ASD and has yielded inconclusive results (Bauminger & Kasari, 2000; Chamberlain et al., 2007; Kasari et al., 2011).

Some findings indicate that, as compared to typical peers, children with ASD only report significant differences as it pertains to companionship. These findings were in the context of children with ASD being found to have fewer friendships and being less centrally involved within the social structure of the classroom than their typical peers. Other research has found that children with ASD report significant differences, as

compared to their typical peers, in several areas including closeness, security, helpfulness, and companionship. These findings suggest that, in addition to directly measuring the quality of social skills of a child with ASD, one must understand the ways in which children with ASD perceive the features of friendship and how they might characterize a self-reported best friendship with a peer.

Feelings of loneliness.

The importance of friendship formation and positive social experiences at school may also impact an individual's feelings of loneliness. In order to assess feelings of loneliness, the Loneliness Scale (Asher, Hymel, & Renshaw, 1984) has been used extensively in research with children. Using this scale, some research has found, among children generally, that friendships and group belonging within a classroom may be related to feelings of loneliness in that students who have more friends feel less lonely (Asher et al., 1984). Other research has differentiated the level of loneliness based upon the more distinct levels of social network status, such as differences in levels of loneliness between children who are neglected within the classroom and children who are more peripheral (Asher & Wheeler, 1985).

One of the primary deficits of children with ASD is the lack of initiation of social interaction and an emotional understanding of social relationships. These deficits may impact the development of feelings of loneliness for children with ASD regardless of whether or not they are reported to have friends. Research regarding students with ASD has documented some instances in which children with ASD reported more feelings of loneliness than typical peers (Bauminger, Shulman, & Agam, 2003; Lasgaard, Nielsen, Eriksen, & Goossens, 2010). Other research has reported instances in which children

with ASD do not report greater feelings of loneliness than typical peers, despite having few friends within a class (Chamberlain 2001; Chamberlain et al., 2007). Therefore, it is necessary that research also consider the role of self-reported loneliness when evaluating the quality of social experiences of children with ASD.

Within an ecological framework, the individual is the central unit of analysis when seeking to understand the perceptions and experiences of that individual (Bronfenbrenner, 1979). Examining child-centered factors such as the quality of social skills, understanding of the construct of friendship, and feelings of loneliness provide a foundation for beginning to understand potential influences on social experiences and friendships of students with ASD. An ecological framework also emphasizes the importance of others present in the immediate environment and the relationship between the individual and those in the environment. It is critical to expand the research to also consider and address other influences in the child's environment such as the attitudes, knowledge, and behaviors of teachers and peers that interact with the student with ASD within the classroom setting (Bronfenbrenner, 1977).

General Education Teacher Factors

Given the amount of time that teachers spend with children, research has consistently documented the important role that teachers play in the education and development of all children (Barnes, 2008). The significance of the teacher role becomes even more critical for the education and development of children with disabilities. These children possess inherent deficits in social, emotional, physical, cognitive, and/or behavioral development that must be understood and addressed by the teacher (Garvar-Pinhas & Schmeltin, 1986).

Prior to 1975, children identified with a disability were educated primarily in special education classrooms or separate schools (Jacob & Hartshorne, 2007; Messemer, 2010). Within these segregated educational environments, researchers focused on the important role of the teacher and studied the attitudes, knowledge, and experiences of special education teachers in educating children with disabilities (Anderson, Criswell, Slate, & Jones, 1993; Blackwell, 1972; Dake, Fisher, Pumpian, Haring, & Breen, 1993; Denti & Atkinson, 1994; Jordan & Cessna, 1969; Meisgeier, 1965; Reynolds, Wang, & Walberg, 1990).

The passage of the Education for All Handicapped Children Act (P.L. 94-142) in 1975 and the subsequent reauthorizations leading to the Individuals with Disabilities Education Improvement Act (2004) ushered in a gradual transition towards inclusion of children with disabilities and providing an education in the least restrictive environment among typically developing peers whenever possible (EHA, 1975; IDEA, 2004; Kamps, Barbetta, Leonard, & Delquardi, 1994; McDonnell, 1998; Simpson, Boer-Ott, & Smith-Myles, 2003). This dramatic shift in the education of children with disabilities challenged general education teachers to teach children with disabilities, even though most of the teachers had never taken classes or received formal training regarding teaching children with disabilities (Dymond, Gilson, & Myran, 2007).

Many theorized that educators' attitudes towards inclusion might impact the success of inclusive education for children with disabilities (de Boer-Ott, 2005; Segall, 2008). For example, a teacher's attitude could influence one's expectations for a student that would, in turn, affect the student's self-image and academic performance (Alexander & Strain, 1978). Researchers began examining the attitudes of general education teachers

towards the broad concept of inclusive education for children with disabilities (Avramidis & Norwich, 2002; Cochran, 1998; Minor et al., 2002; Scruggs & Mastropieri, 1996). Results suggested that general education teachers expressed relatively positive attitudes towards the general concept of inclusion of students with disabilities. However, teachers also indicated that the type of disability, the severity of disability, and their training, experience, and knowledge of the disability influenced their attitudes toward inclusion (Avramidis & Norwich, 2002; Garvar-Pinhas & Schmeltin, 1986; Hannah & Pilner, 1983).

Teachers' attitudes often influence their behavior and can have tremendous impact on the academic, social, and emotional growth of children with ASD in the general education classroom (Barnes, 2008; Garvar-Pinhas & Schmelkin, 1986; Messemer, 2010; Segall, 2008). Despite an understanding of the importance of the role of the teacher and the unique challenges presented by children with ASD in the classroom, very little research has examined the attitudes, knowledge, and experiences of general education teachers in educating children with disabilities and particularly children with ASD.

Initial findings suggest that, on average, roughly half of general education teachers are favorable toward the inclusion of students with ASD (Barnes, 2008; de Boer-Ott, 2005; McGregor & Campbell, 2001; Messemer, 2010; Park & Chitiyo, 2011; Sansoti, 2008). But, consistent with research on attitudes toward inclusion in general, findings also revealed that teachers felt that their attitude towards the inclusion of students with ASD is influenced by the severity of the disability, knowledge of ASD, training relative to ASD, and perceived support by the school in educating children with

ASD (Al-Faiz, 2006; Barnes, 2008; McGregor & Campbell, 2001; Messemer, 2010; Park & Chitoyo, 2011).

While researchers have access to a range of survey instruments to examine teacher attitudes towards the inclusion of students with disabilities other than ASD or towards the principle of inclusion in general (Cochran, 1998; Minor et al., 2002), due to the novelty of this body of research relative to ASD, few instruments exist that effectively and specifically assess the attitudes of general education teachers toward the inclusion of students with ASD. The primary methodology used to obtain this information has been research-constructed surveys such as the Autism Attitude Scale for Teachers (Park & Chitiyo, 2011), Teacher Attitudes toward the Inclusion of Students with Autism (Kelly, 2004), and the Attitudes of Regular Educators toward Inclusion for Students with Autism Survey (Barnes, 2008).

Although some studies have specifically examined general education teacher attitude towards the inclusion of students with ASD, very few studies have looked at the relationship between the knowledge, experiences, and attitude toward inclusion of general education teachers in regard to students with ASD (Segall, 2008). Research consistently documents that children with ASD have unique characteristics that impact their behaviors and thought processes and require the use of specialized evidenced-based practices by teachers (Harrower & Dunlap, 2001; Iovannone, Dunlap, Huber, & Kincaid, 2003; Odom, Collett-Klingenberg, Rogers, & Hatton, 2010; Reichow & Volkmar, 2010; Ryan, Hughes, Katsiyannis, McDaniel, & Sprinkle, 2011). Therefore, it is essential to examine the knowledge of these characteristics of ASD and knowledge of evidence-based practices to most effectively address these characteristics.

Two studies in particular sought to address this gap in the literature. Segall (2008, 2011) used the Autism Inclusion Questionnaire (AIQ) to survey educators, including special education teachers, general education teachers, school psychologists, and principals regarding their experience, training, knowledge, attitudes, and current practices in regard to students with ASD. The AIQ developed by Segall for these studies is divided into five primary sections. Section one collects demographic information and experience such as special education training and experience and key demographic variables of the general education teacher. The second section collects information regarding knowledge of ASD (diagnosis and symptomatology, treatment, and etiology).

Section three assesses opinions about inclusive education towards students with ASD and students without ASD. The fourth section examines classroom behaviors by asking participants to rate behaviors related to ASD in regard to how disruptive each behavior would be in the classroom. The final section collects information regarding classroom practices based upon a list of strategies, interventions, and practices that may be useful in the inclusion of a student with ASD in the general education setting. For each practice listed, participants are asked to indicate whether they have heard of the particular practice, whether they have used the strategy, and whether they think it is effective in including a student with ASD in the classroom.

In administering the original version of the AIQ, Segall (2008) found that teacher reported ASD experience and knowledge were significantly related to their awareness and use of practice options and that experience with students with ASD was most predictive of the number of inclusion practices that teachers were aware of and reported to use. However, a significant relationship was not found between attitude towards

inclusion and awareness and use of practice options. While attitude did not emerge as related to educational practices, across educator types (i.e., general education teachers, special education teachers, administrators) the attitude of the staff was ranked as the most important factor for successful inclusion.

General education teachers reported the least experience with students with ASD and were found to demonstrate awareness of the fewest number of inclusion strategies in comparison to special education teachers and administrators. In regard to ASD knowledge, general education teachers on average answered one third of the questions correctly, which was the least out of the three respondent groups. For those items that were not reported as answered correctly, respondents typically selected the "don't know" option as opposed to selecting an incorrect response. This suggests that educators may readily concede a lack of knowledge as opposed to endorsing incorrect responses about their knowledge of ASD. Participants did not indicate that the behaviors characteristic of ASD were particularly disruptive. Overall, general education teachers reported relatively positive attitudes towards inclusion of students with ASD even while demonstrating a lack of knowledge regarding ASD and evidence-based practices to educate students with ASD.

Using a modified version of the AIQ, Segall (2011) again surveyed general and special education teachers, administrators, and school psychologists. Results indicated that overall attitudes towards the inclusion of students with ASD were favorable. However, general education teachers were found to report the least positive attitudes. As expected, special education teachers and school psychologists demonstrated greater knowledge, awareness of practices, and use of strategies than general education teachers

and administrators. Higher levels of experience and training pertaining to ASD was found to be related to more positive attitudes towards the inclusion of students with ASD and greater levels of reported implementation of evidence-based practices. Once again, general education teachers selected the "Don't Know" option for a number of the autism knowledge questions.

Overall, general education teachers have been found to have less favorable attitudes towards the inclusion of students with ASD, possess less knowledge regarding characteristics of students with ASD, and feel less prepared to teach students with ASD than special education teachers (McGregor & Campbell, 2001; Segall, 2008, 2011; Stoiber et al., 1998; Stone & Rosenbaum, 1988). These findings were often influenced by whether the general education teachers had previously taught students with ASD.

While research in the area of general education teachers and students with ASD has been increasing, there is limited research that examines how these factors related to general education teachers may impact the social experiences of students with ASD in the general education classroom. For example, if general education teachers do not believe that students with ASD should be educated in their classroom or do not feel competent in utilizing evidence-based practices to facilitate social interactions, this may, in turn, impact the social experiences of students with ASD in their classroom.

One primary recurring criticism regarding the way in which research on this topic has been conducted is that "teachers' attitudes toward their actual students [with disabilities], rather than their opinions regarding an abstract concept of inclusion, represent a more potent and parsimonious predictor of quality education for included students with disabilities" (Cook & Tankersley, 2000, p. 116). Despite these relatively

positive findings regarding the attitudes of general education teachers towards the inclusion of students with ASD, this research fails to examine the relationship between general education teacher attitudes toward the inclusion of students with ASD and the actual experiences and outcomes of students with ASD being educated by these general education teachers.

The exploratory research to date has focused on seeking information from a broad number of general education teachers, regardless of whether they have a student with ASD in their class, in order to develop a baseline understanding of overall general education teacher knowledge, experiences, and attitude toward the inclusion of students with ASD. Awaiting further examination is whether the knowledge, experiences, and attitude of the general education teacher directly impact the experience of students with ASD within the general education classroom (Garvar-Pinhas & Schmeltin, 1986). Specifically, does increased general education teacher knowledge of ASD characteristics, knowledge of evidence-based practices for working with students with ASD, or attitude toward inclusion of students with ASD increase the social and academic outcomes of the children with ASD whom they educate?

One study examined the relationship between general education teacher attitude toward inclusion and the outcomes of their students with ASD (Kelly, 2004). Twenty-one general education teachers with a student with ASD in their classroom were surveyed using the following measures: Teacher Attitudes toward the Inclusion of Students with Autism Scale, Teacher Demographic and Background Questionnaire, Childhood Autism Rating Scale (CARS), Vineland Adaptive Behavior Scale (Socialization subscale), Student and Demographic Characteristics, and a semi-structured interview.

The study found that there was no relationship between attitude toward inclusion of students with ASD and teacher perception of child progress in socialization skills and prevalence of autism characteristics. Teachers reported no significant child gains on ratings on the CARS or the Vineland. While this study is one step closer to obtaining the information needed, when assessing child social outcomes it fails to take into consideration child outcomes as measured by means other than teacher report on standardized measures of ASD characteristics and social skills. Rather, it focuses on teacher perception of socialization outcomes as rated on the Vineland. Research is needed that examines the relationship between teacher factors and child factors utilizing alternative means of measuring child social outcomes are measured, such as social network analysis.

Peer Factors

The movement towards inclusion also impacts the peers of students with ASD in the general education classroom (Harrower & Dunlap, 2001). Typically developing students began being educated alongside students with disabilities who had previously been educated in segregated settings and who were viewed as different (Magiati, Dockrell, & Logothet, 2002). A primary reason for inclusion, particularly of children with ASD, was the hope that the increased time spent around typically developing peers would enhance the social skills and social interactions of children with disabilities (Burack, Root, & Zigler, 1997; Campbell, Ferguson, Herzinger, Jackson, & Marion, 2004). This premise put increased responsibility on peers to meet the expectations of helping to facilitate the social inclusion of students with ASD (Campbell & Barger, 2011).

Researchers have looked extensively at peer-mediated interventions as a means to use typical peers to help target the social skills deficits and improve the relationships of students with ASD (Goldstein, Kaczmarek, Pennington, & Shafer, 1992; Kamps et al., 1994; Laushey &Heflin, 2000; Myles, Simpson, Ormsbee, & Erickson, 1993; Owen-Schryver, Carr, Cale, & Blakeley-Smith, 2008). Peer-mediated approaches utilize the selection of typical peers who are then taught social behaviors or strategies to direct and respond to children with autism (Goldstein et al., 1992; Rogers, 2000).

A primary goal of using peer-mediated social interventions is to maximize the opportunities to increase the duration and improve the quality of social interactions between students with autism and their typical peers (Thiemann & Goldstein, 2004). Despite the abundance of research regarding the use of peers in social interventions for children with ASD, much less research has focused on examining children's attitudes towards children with disabilities and how these attitudes may impact the interactions and relationships of children with and without disabilities at school.

Considering the impact of inclusion on typical peers and given what is known regarding the relationship patterns of children with disabilities in inclusive educational settings, it is essential that factors such as attitudes of children towards children with disabilities be considered. Children's attitudes towards children with disabilities are important to any study of education and children with disabilities because these attitudes have been found to relate to their reported behavioral intentions towards children with disabilities. Previous research has consistently shown that typical children hold negative attitudes towards children with a range of disabilities (Friedrich, Morgan, & Devine, 1996; Gordon, Feldman, Tantillo, & Perrone, 2004; Magiati, et al., 2002; Nowicki &

Sandieson, 2002). However, a more recent review of the literature found that peers generally hold neutral attitudes towards children with disabilities, with slight variation found in regard to the type of disability in that peers may hold more positive attitudes towards children with more apparent disabilities such as physical disabilities (De Boer, Pijl, & Minnaert, 2012). These findings may suggest that over time, children are gradually holding more positive attitudes towards children with disabilities, as practices such as educational inclusion and more pervasive exposure to individuals with disabilities have been in existence for some time now.

While various conceptual frameworks exist to explain attitudes, in using a multi-dimensional conceptual framework, attitudes are influenced by affective (feelings and emotional reactions), behavioural (actual or intended behavior), and cognitive (beliefs and knowledge) factors. The Chedoke Attitudes Toward Children with Handicaps Scale (CATCH; Rosenbaum, Armstrong, & King, 1986) was developed to capture this multi-dimensional theory of attitudes and apply it towards our understanding of children's attitudes towards children with disabilities.

The CATCH and other similar measures have been connected with measures of children's self-reported behavioural intentions towards hypothetical children with disabilities (Laws & Kelly, 2005; Roberts & Lindsell, 1997). However, minimal research has been conducted that connects children's attitudes towards children with disabilities with actual social network data that reflect their social relationships with children in their classroom, which includes children with disabilities. For example, one study found that children with more favorable attitudes towards children with disabilities also reported more favorable behavioral intentions towards children disabilities and were found to

report and be observed to have relationships with a child with cerebral palsy in their classroom (Roberts & Smith, 1999).

Purpose of the Current Study

A recent review of the literature used "social participation" to refer to the following four themes related to the social network and social experiences of students with disabilities: (1) interaction between a student with disabilities and peers, (2) acceptance by peers of student with disability, (3) friendships among student with disability and peers, and (4) social self-perception (Koster, Nakken, Pijl, & Van Houten, 2009). Considering the findings regarding the social network status of children with ASD in the general education classroom, the purpose of this study is to assess child, teacher, and peer factors as they relate to the social network status and social participation of students with ASD within an ecological framework. In order to understand better the variation found in the social network status and social experiences among students with ASD, the following research questions are proposed:

Research Questions

1. How well do students with ASD fit in within the social structure of the classroom?
2. Is the quality of social skills of students with ASD, as rated by the primary guardian and general education teacher of the student with ASD, related to the social network status of the student with ASD (i.e., does higher quality of social skills relate to higher social network status)?
3. Are students with ASD lonelier than students without ASD based upon self-report ratings and are ratings of loneliness related to social network status (i.e., are

students who are more central in the social network less lonely, whereas students who are more isolated more lonely)?

4. Do students with ASD report similar qualities of friendship (i.e., a similar understanding of the features of friendship) to students without ASD and are ratings of qualities of friendship related to social network status and self-reported loneliness?
5. What are the attitudes of students without ASD towards children with disabilities? Is the attitude of students without ASD towards children with disabilities related to the social network status and reports of loneliness of students with ASD?
6. Are general education teacher knowledge of ASD, attitudes toward the inclusion of students with ASD, perception of disruptive behaviors, and their knowledge and use of evidence-based practices for students with ASD related to the social network status of students with ASD?

Research Hypotheses

Hypotheses from the study are based upon research questions and a review of the literature. The hypotheses based upon the research questions are as follows:

1. Students with ASD will be less embedded within the social network of the general education classroom as compared to students without ASD as measured by social network centrality. Some students with ASD will be found to be more embedded (nuclear or secondary) within the social network of their general education classroom than other students with ASD (peripheral, isolated).

2. Students with ASD with higher reported quality of social skills will be more embedded within the social network of the classroom in comparison to students with ASD with lower reported quality of social skills.
3. Students with ASD will not report higher levels of loneliness than students without ASD. Students with lower self-reported levels of loneliness will be more embedded within the social network of the classroom in comparison to students with ASD with higher self-reported levels of loneliness.
4. Students with ASD will report lower levels of friendship qualities than students without ASD. Students with ASD who are more embedded within the social network of the classroom will report lower levels of loneliness and higher friendship qualities in comparison to students with ASD who are less embedded within the social network of the classroom.
5. Students without ASD will report overall positive attitudes towards children with disabilities. Students with ASD will be more embedded within the social network of the classroom in classrooms reporting more positive attitudes towards children with disabilities in comparison to students with ASD in classrooms reporting less positive attitudes towards children with disabilities.
6. Students with ASD will be more embedded within the social network of the classroom in classrooms where the general education teacher reports more positive scores on the AIQ (experience, knowledge, attitude, awareness of evidence-based practices, use of evidence-based practices, etc.).

Chapter Three

Methods

Participants

Participants for this study were recruited from a public school system in central Kentucky. Participants included three students with confirmed educational or clinical diagnoses on the autism spectrum. Students eligible for study participation met the following criteria: students with ASD must be in the third, fourth, or fifth grade, educated in the general education classroom for at least eighty percent of the day, and have a confirmed clinical or educational diagnosis on the autism spectrum for which they were currently receiving special education services. The researcher reviewed the target student's psycho-educational integrated report and Individualized Education Program (IEP) to provide additional information regarding the target student. The research study was open to students in third grade but no participants in third grade were enrolled in the study during recruitment.

Two of the three target students were ten years old and in fourth grade. The third target student was eleven years old and in fifth grade. That all three students with ASD were male was not unexpected, since it is known that a diagnosis of ASD is found at a much higher rate among males than females in the general population (APA, 2000; CDC, 2012). All three students with ASD had cognitive abilities in the average to above average range as measured by standardized assessments or teacher report. Additional demographic information regarding the target students with ASD is provided in Table 1.

Table 1

Demographic Information for Target Students with ASD

	Target Student 1	**Target Student 2**	**Target Student 3**
Primary Diagnosis	Asperger's	Mild Autistic/ PDD-NOS	Autism Spectrum Disorder
Secondary Diagnosis	ADHD-Combined	ADHD-Combined	None
Grade	4th	4th	5th
Age	10 years	10 years	11 years
Cognitive Abilities	WISC-IV: GAI = 121 (Above Average)	KABC-II: NVI = 102 (Average)	Teacher SSRS Cognitive = 92 (Average)
Time received special education services	1 school year and 4 months	Since prior to entering kindergarten	2 months

Note. All target students are male. PDD-NOS = Pervasive Developmental Disorder – Not Otherwise Specified; ADHD = Attention Deficit Hyperactivity Disorder; WISC-IV = Wechsler Intelligence Scale for Children – Fourth Edition; KABC-II = Kaufman Assessment Battery for Children – Second Edition; SSRS = Social Skills Rating System.

All students, in addition to the target student with ASD, from that particular class were also asked to participate in the study (see Table 2). Self-report data and social network nominations were obtained from 44 peers across the three classes who had parental consent. Social network data were obtained on all peers from the classrooms of the three target students with ASD based on aggregating peer reports of those students who participated. Students without parental consent did not provide self-report or social network data. However, based on social network nominations obtained from students participating in the study, robust results of classroom social structures were obtained.

Table 2

Classroom Sample Sizes by Student Gender

	Classroom 1		**Classroom 2**		**Classroom 3**	
	M	F	M	F	M	F
Total Participants	6	8	11	8	3	11
Total Number of Students in Class	12	15	15	14	12	14

Note. M = Male; F = Female.

It should be noted that just because all students with the exception of the three target students are referred to as "peers" does not confirm that the students referred to as "peers" do not, in fact, have a disability themselves. For example, one teacher participating in the study indicated that there were two students in her class, in addition to the target student with ASD participating in the study, who also had diagnoses of ASD. However, parental permission was not obtained to collect additional information on these students regarding their diagnosis of ASD. Therefore, those students are not identified as a target student or as having a diagnosis of ASD.

The general education teacher for each student with ASD was also asked to participate in the study (see Table 3). All three general education teachers were female (two Caucasian/White and one African-American). The teachers ranged in age from 28-44. One teacher reported her highest degree as a Bachelor's degree while two teachers reported their highest degree as a Master's degree. Years of teaching experience ranged from 3-18.

Table 3

General Education Teacher Demographic Information

	Classroom 1	Classroom 2	Classroom 3
Age	44	39	28
Race/Ethnicity	Caucasian/White	Caucasian/White	African American
Highest Degree Obtained	Master's	Master's	Bachelor's
Years Teaching	6	18	3
Previous ASD experience	Yes	Yes	No

Note. All participating general education teachers are female.

The primary caregiver for the student with ASD was also asked to participate in the study. The mother of each target student provided information on the Social Skills Rating System.

Measures

Students.

For this study, all participating students completed four rating scales, each general education teacher completed two rating scales, and the primary guardian for the student with ASD completed one rating scale. The investigator scored all rating scales completed by the participants.

The set of measures used for this study were tested with three students in grades first through fifth to check for readability and clarity of the measures prior to the finalization of study measures. In independently reading each item while the item was also read aloud by the examiner, no issues with readability were noted. The researcher observed that the students at times had difficulty, the further down the rating scale they got, with recalling the description assigned to each rating scale value and with correctly aligning the item number (row) with the scale response (column). To account for this noted difficulty, the formatting of each measure was adjusted so that after every eight to

ten items, the numerical scale response options with the corresponding description was again provided as a reference.

The instructions for all of the measures, as well as all individual items on each measure, were read aloud for consistency purposes and to ensure that, regardless of reading ability, they were understood by all participants.

Friendship Survey. The Friendship Survey assesses self-reported friendships and groups of friends at a classroom level (Cairns & Cairns, 1994). This instrument was administered to each student in the classroom who had provided consent (a minimum of 50%). First, students were instructed to list all children in their class with whom they like to "hang out." Students were able to list as many students as they wished. Based on this list, students were then instructed to circle the names of the three children they most like to hang out with and to place a star next to the name of the one child with whom they most like to hang out with.

Some previous research studies have also asked students to list any children with whom they do not like to hang out. However, this specific question was not included in the current study. Although this particular question is sensitive in nature, previous research examining social network salience of students with ASD has included this question for the purpose of determining students who are considered rejected within the classroom. However, because this study includes an additional measure assessing the attitudes of students towards children with disabilities, this question was omitted to prevent negative attention being focused on students with disabilities within the classroom, particularly in regard to the possibility of a student being identified as someone with whom others do not like to hang out.

Finally, each student was instructed to list children in the class who like to "hang out" together, listing as many groups of boys and girls, including the child completing the form, that exist within the classroom. Students could be listed as belonging to more than one group. Students circled each group they had identified as "hanging out" together.

This method of free recall was used, as opposed to providing class lists or photographs of individual students, because the ability of children to freely recall classmates as part of social groups has been found to be an important indicator of that child's salience in the classroom's social structure (Cairns, Cairns, Neckerman, Gest, & Gariepy, 1988). This method has been used in several previous studies from early childhood to adolescence among children with and without disabilities to assess friendships within classrooms (Cairns & Cairns, 1994; Chamberlain, 2001; Chamberlain et al., 2007; Kasari et al., 2011; Lee, 2008; Locke et al., 2010; Rotheram-Fuller, 2005; Rotheram-Fuller et al., 2010).

The data were aggregated for each individual classroom to provide several different variables of measurement related to social network. The first two variables of measurement related to social network that were identified for each participant were indegrees and outdegrees. Indegrees refers to the total number of friendship nominations received for each child (i.e., the number of peers who indicated the child as "someone they like to hang out with"). Outdegrees refers to the total number of friendship nominations made by a particular child (i.e., the number of peers who the child indicated as "someone they like to hang out with").

Data were also aggregated to reflect two types of friendship reciprocity: "Top Three" and "Best Friend." Each score can range from 0-100 and is reported as a

percentage. The "Top Three" reciprocal friendship indicates the percentage of peers who were included in a subject's "Top Three" list who also nominated that student reciprocally to their own "Top Three" list. To account for students who did not participate in the study and who therefore did not provide social network data, those students were removed from the calculations. The "Top Three" reciprocal friendship percentages were calculated by dividing the number of "Top Three" nominations received from the student's own "Top Three" nominees by the maximum number of possible nominations that could be reciprocated from the student's own "Top Three" nominees. The maximum number of possible nominations that could be received only included the nominated individuals who themselves participated in the study. The percentage was multiplied by 100.

"Top Three" friendship reciprocity = (Reciprocated Indegrees/Reciprocated Outdegrees) X 100.

The best friend reciprocal score indicated whether a student's nomination for "best friend" was reciprocated by the nominated student. This score is reported as one (best friendship was reciprocated between two students) or zero (best friendship was not reciprocated between two students). When a student who did not participate was nominated as a "best friend," that item was scored as missing data.

Social network methods. Data from the Friendship Survey were used to code for social network centrality. Using the methodology outlined in Cairns and Cairns (1994), a "recall matrix" was created to record the groupings reported by each participating student. Within the recall matrix, the names of each student are listed across the top of the matrix and down the left side of the matrix. Each student's protocol is then reviewed to

document each identified group. In the column under each student's name, the individual groups reported by that particular student are recorded down throughout the column using a group number to represent which individuals belong to the same group as reported by each particular student.

Once the recall matrix has been created, this information is used to create a co-occurrence matrix. First, in each cell in which the name listed at the top of the column correspond to the name listed at the end of the row, the number of times that particular student was identified as belonging to any group is documented. This creates a diagonal from the top left cell to the bottom right cell that represents the number of times that a particular student was identified as belonging to any group. Then, above this diagonal, numbers are entered into each cell to indicate the number of times the two students were listed as belonging to the same group.

These co-occurrence scores are used to determine clusters of students who exist within the social structure of the class by calculating the degree of similarity between the sets of contacts for each pair of students (this is referred to as the "profile similarity index"). Using the recommendation outlines by Cairns (1994), students were considered as belonging to the same subgroup or 'cluster' when the PSI was found to be greater than .40. Once two students are determined to belong to the same cluster based on the PSI calculations, a line can be drawn between them on a social network graph. Once these clusters have been identified, analyses exist to describe characteristics of these clusters, both on a group level and an individual level.

Consistent with the original work conducted by Cairns and Cairns (1994) in regard to social network analysis, a social network centrality score was calculated for

each child. Social network centrality denotes the prominence of an individual child within the overall social structure of the classroom. More specifically, three related scores were calculated to determine a student's level of involvement within the social network of the classroom: (1) the student's "individual centrality," (2) the "cluster centrality" of each social group within the class, and (3) the student's combined "social network centrality" score.

Individual centrality refers to the social salience of each individual within the classroom. The value obtained representing the number of times each individual student was identified as belonging to any cluster is compared to the highest value found in the class. Students with values found to be greater than 70% of the highest value in the class are considered to have a high individual centrality score. Students with values found to be less than 30% of the highest value in the class are considered to have a low individual centrality score. Students with values found to be between 30 to 70% of the highest value in the class are considered to have a medium individual centrality score.

Cluster centrality refers to the social salience of individual clusters of students within the classroom. This score is found by examining each individual cluster. Within an individual cluster the average is computed using the value obtained representing the number of times each individual student was identified as belonging to any cluster for the two members in the group with the highest centrality score. The cluster centrality score of each individual group is then compared to the highest cluster centrality score in the classroom. Clusters with centrality scores found to be greater than 70% of the highest cluster value in the class are considered to have high cluster centrality. Clusters with centrality scores found to be less than 70% of the highest cluster value in the class are

considered to have low cluster centrality. Clusters with centrality scores found to be between 30 and 70% of the highest cluster value in the class are considered to have medium cluster centrality.

The individual centrality score and cluster centrality score are then used to determine the social network centrality score for each student within the classroom. The four levels of social network centrality that were used included isolated, peripheral, secondary, and nuclear. Each level of centrality was coded from zero to three as a means to provide a systematic way to describe the integration of children with ASD within the social structure (see Table 4).

Children who were found to be "isolated" received a score of zero for their social network centrality, indicating they are not found to be part of any cluster of children within the classroom. Children who were found to be "peripheral" received a score of one for their social network centrality, indicating they are considered to be on the fringes of the social structure of the classroom. While these children may display some connection to other children within the classroom, they are not found to be salient members of the social network of the classroom. Children who were found to be "secondary" received a score of two for their social network centrality, indicating they are well-connected members within the social structure of the classroom. Children who were found to be "nuclear" received a score of three for their social network centrality, indicating that student is a central member of the social structure of the classroom.

Table 4

Relationship of Centrality Variables

Social Network Centrality	Individual Centrality	Cluster Centrality
Nuclear	High	High
Secondary	Medium	High
Secondary	High/Medium	Medium
Peripheral	Low	High/Medium
Peripheral	High/Medium/Low	Low
Isolated	High/Medium/Low	Does not belong to a cluster

Note. Individual centrality refers to the social salience of each individual within the classroom. Cluster centrality refers to the social salience of individual clusters of students within the classroom. The individual centrality score and cluster centrality score are then used to determine the social network centrality score for each student within the classroom. Adapted from "Isolation or Involvement – The Social Network of Children with Autism Included in Regular Classes," by B.O. Chamberlain, 2001, Doctoral Dissertation, University of California Los Angeles, p. 36.

Loneliness Scale. The Loneliness Scale is a self-report measure consisting of 16 items related to aspects of loneliness as well as eight additional filler items (Asher, Hymel, & Renshaw, 1984). Together the sixteen primary items assess the following four areas: children's feelings of loneliness (e.g., "I'm lonely at school"); children's appraisal of their current peer relationships (e.g., "I don't have any friends in class"); children's perceptions of the degree to which important relationships needs are being met (e.g., "There's no other kids I can go to when I need help at school"); and children's perceptions of their social competence (e.g., "I'm good at working with other children in my class").

All items were rated on a five-point Likert scale (1 = *not true at all* and 5 = *always true*). Total scores are the sum of ratings on each of the 16 primary items and range from 16 to 80 with higher scores indicating greater levels of loneliness and social dissatisfaction. Internal consistency has been found to be .90 in the original study (Asher et al., 1984) as well as more recent studies (Asher et al., 1990). For this study, internal

consistency was found to be .92. Sound psychometric properties have been found for the Loneliness Scale including stable factor structure and convergent validity (Asher & Wheeler, 1985; Bagner, Storch, & Roberti, 2004).

Friendship Qualities Scale. The Friendship Qualities Scale is a self-report measure consisting of 23 items (FQS; Bukowski et al., 1994***)***. Each student is instructed to select a peer who they would consider as their best friend and to specifically think about that friend when answering each of the questions. Students were given the option of selecting a child from outside of their classroom (i.e., another class or outside of school) to reinforce that a reciprocal best friendship nomination from within the classroom was not required in order to complete the scale. Together the items assess the following features of friendship quality: companionship (amount of voluntary time spent together); help (encompassing both aid and protection from victimization); security (including trust and the idea that the relationship will transcend specific problems); closeness (consisting of both the child's feelings toward the partner and his or her perceptions of the partner's feelings); and conflict (disagreements in the friendship relation).

All items were rated on a 5-point Likert rating scale from one (*never true*) to five (*always true*). A total score from each subscale was obtained by adding the scores of each item within each subscale and dividing the total score by the number of items. Subscale scores range from one to five. This measure has been used in previous studies of friendship in students with ASD (Bauminger & Kasari, 2000; Bauminger et al., 2008; Kasari et al., 2011). Internal consistency of each of the subscales has been found to be between .71 and .86 in the original study (Bukowski et al., 1994) and between .57 and .86

in other studies (Bauminger et al., 2008). For this study, internal consistency for the measure in its entirety was found to be .86. Internal consistency values for each of the subscales ranged from .63 - .83 and were found to be as follows: Companionship: .64, Conflict: .74, Help: .83, Security: .65, and Closeness: .63.

Chedoke-McMaster attitudes toward children with handicaps scale- Revised (CATCH). The CATCH is a self-report measure that assesses children's attitudes towards children with disabilities (Rosenbaum et al., 1986). It contains 36 items that have been previously rated on a scale from zero (*strongly disagree*) to four (*strongly agree*), including a neutral response option (2). For the purpose of this study study, students were asked to rate each item on a scale from one (*definitely disagree*) to four (*definitely agree*). The neutral response was removed to encourage participants to provide a non-neutral response. Because children may not have always had the experiences or exposure asked about within the rating scale, a possibility existed that the participants would be tempted to answer many items neutrally, as opposed to providing a response that indicates a more positive or more negative viewpoint. Additionally, the wording of "handicapped child" from the original scale was modified to "child with a disability" to reflect person first language.

The three subscales of affective, behavioural, and cognitive each contains twelve items. Each subscale is scored by calculating the mean for the items within the subscale and then multiplying that value by 10. The total score is obtained from calculating the mean for all items on the scale and then multiplying that value by 10. Subscale and total scores range from 12 to 40. Higher scores indicate more positive attitudes towards children with disabilities. The CATCH has generally been found to have sound

psychometric properties including good reliability, internal consistency, and good construct validity (Rosenbaum, Armstrong, & King, 1986; Vignes, Coley, Grandjean, Godeau, & Arnaud, 2008). For this study, internal consistency for the CATCH total was found to be .88. Internal consistency for the subscales was found to range from .47 to .84 and were as follows: Affective: .84, Behavioural: .79, and Cognitive: .47. Some previous research has also found the cognitive subscale to have lower internal consistency (Cronbach's alpha value of .68, Bossaert & Petry, 2013).

Teachers.

Autism Inclusion Questionnaire. The Autism Inclusion Questionnaire contains five sections (AIQ; Segall, 2011). The first section collects demographic information regarding previous education and teaching experience in addition to specific demographic information regarding the general education teacher. The second section collects information regarding knowledge of ASD (diagnosis and symptomology, treatment, and etiology) through the use of 15 statements that offer response options of 'true', 'false', or 'don't know.'

The third section assesses opinions regarding inclusive education towards students with ASD and students without ASD using 27 Likert-type scale items with response options ranging from "Strongly Agree' to 'Strongly Disagree' with an option for 'no opinion or neutral'. Section four examines classroom behaviors by asking participants to rate 20 behaviors common with ASD in regard to how disruptive each behavior would be in the classroom ranging from 'Highly Disruptive' to 'Not At All Disruptive'. Section five collects information regarding classroom practices based upon a list of 37 strategies, interventions, and practices that might be beneficial in including

students with ASD in the general education classroom. For each practice listed, participants were asked to indicate whether they had heard of the particular practice, whether they had implemented the strategy, and whether they think it could be beneficial in helping to include a student with ASD in the classroom.

Each section on the measure yields a subscale total. Psychometric properties were not calculated for this study because only three participants completed the measure. For section one, an experience total score was calculated by adding positive responses to the following four items: having special education certification, autism specific training, autism specific experience, and currently educating a student under the eligibility of autism spectrum disorder in their general education classroom. The Experience Total Score can range from 0 to 4. Internal consistency in the original study was found to be .77 (Segall, 2008). Section two yielded a Knowledge Total Score that was found by adding the number of correct responses to the 15 items specifically assessing knowledge of autism. To account for responses of 'Don't Know', the total number of 'Don't Know' responses was added. A Percent Correct Score was then by calculated by dividing the Knowledge Total Score by the difference of the total number of items (15) and the total number of 'Don't Know' responses. Internal consistency has been found to be .83 in the most recent study (Segall, 2011) and similar to the internal consistency found in the original study (Segall, 2008).

Section three, Opinions about Inclusive Education, contains seven items that constitute an Attitude toward ASD Inclusion Total Score. All seven items, with the exception of items 21 and 23 which are first reversed scored, were summed to represent a total score. Total scores can range from 7 to 47, with lower scores indicating more

positive attitudes. Internal consistency has been found to be .67 (Segall, 2011). Section four, Disruptive Behavior, yielded a total score that was calculated by adding the score of the 20 items (rated as 5 = *highly disruptive*, 4 = *disruptive*; 3 = *somewhat disruptive*; 2 = *slightly disruptive*; 1 = *not at all disruptive*). Total scores can range from 20 to 100. Internal consistency has been found to be .93 (Segall, 2011).

Section five provided two total scores. An Awareness of Practice Total Score was calculated by adding all items for which the teacher indicated awareness. A second total score, a Use of Practice Score, was found by adding all items for which the teacher indicated current or prior use. While 37 total strategies are rated, consistent with the research conducted by Segall (2011), only the 19 strategies discussed in the Simpson (2005) treatment guide were used for calculating the score. Each item was weighted in accordance with the following original categorizations: 3 = Scientifically Based Practices; 2 = Promising Practices; 1 = Limiting Supporting Information; 0 = Not Recommended. Total scores can range from 0 to 33. Internal consistency for the Awareness of Practice Total Score has been found to be .91 (Segall, 2011) and internal consistency for the Use of Practice Score has been found to be .81 (Segall, 2011). These scores are similar to the internal consistency found in the original study (Segall, 2008).

Primary guardian and teacher.

Social Skills Rating System. This 57-item assessment was completed by the general education teacher of the child with ASD (SSRS-Teacher; Gresham & Elliott, 1990). This tool assesses the social skills, problem behaviors, and academic competence of the student. The first 48 items are rated on a scale from zero (*never*) to two (*very often*). The nine remaining items are rated on a scale from one (*lowest 10%)* to five

(*highest 10%*). The SSRS teacher rating produces the following three categories: Social Skills (positive social behaviors such as cooperation and empathy), Problem Behaviors (including internalizing and externalizing problems), and Academic Competence (general academic functioning). Scores are reported as standard scores compared to a normative sample.

The primary guardian of the student with ASD completed this 55-item assessment (SSRS-Parent; Gresham & Elliott, 1990). The same zero to two-point scale from the teacher form is used. Two subscales of Social Skills and Problem Behaviors are produced based on parent ratings. Scores are reported as standard scores for each subscale compared to a normative sample.

According to the SSRS manual, this measure has been found to have adequate reliability, criterion/construct validity, and content validity. While the SSRS was not normed specifically for children with ASD, it has been used in several research studies to assess the quality of social skills specifically of children and adolescents with ASD (Bellini, 2004, 2006; Konig & Magill-Evans, 2001; Macintosh & Dissanayake, 2006; Meier, DiPerna, & Oster, 2006; Ozonoff & Miller, 1995).

Procedure

The University of Kentucky Institutional Review Board through the Office of Research Integrity approved all research materials and protocols. Once approved through the University of Kentucky, research documents were then approved by the director of research for the Central Kentucky school district.

The special education facilitator at each elementary school in the district was contacted by the researcher and asked to provide the *number* of students at that particular

elementary school who were identified as a student with autism, receiving special education services under the eligibility area of autism, in the 3rd through 5th grade, and educated in the general education classroom 80% or more of the day. The facilitator was also asked to provide the name of the general education teacher for each target student who met the study criteria. The researcher then obtained permission from the principals at those identified schools to recruit participants at that school for data collection. Once permission was obtained from the principal, the researcher contacted those general education teachers already identified to invite them to participate in the study and provided them with the informed consent. Once general education teachers provided consent to take part in the study, they were provided an informed consent to be sent home to the primary guardian of the student with ASD in their class. This process helped to ensure that identifying information for the child with ASD and their family was protected regardless of whether or not they chose participate in the study.

As part of the informed consent, the primary guardian of the child with ASD was provided with contact information and instructions for contacting either the general education teacher or researcher if they had any questions regarding participation in the study. The primary guardian was directed to return the signed consent form to indicate that he or she agreed to participate in the research study. Upon receiving consent from both the general education teacher and primary caregiver of the student with ASD, the researcher sent consent forms home to the caregiver of all other students in the class. At least fifty percent of students in the class had to give consent to participate in order for a given classroom to be a part of the study.

A sample size of 15 to 20 students with ASD in third through fifth grade with their respective classmates, general education teacher, and primary guardian was originally sought. However, as documented through the recruitment flowchart (see Figure 1), several barriers to recruitment were encountered, resulting in a sample size of three students with ASD. Such barriers included the following: three general education teachers were already involved in a separate research study, one teacher was enrolled in graduate coursework and did not want to take on participation in a research study, one teacher had experienced several issues with the family of the student with ASD throughout the year and declined participation, and several teachers expressed a history of difficulty with communicating with the family of the student(s) with ASD (i.e., no working phone numbers, student backpack is never checked for paperwork, etc.).

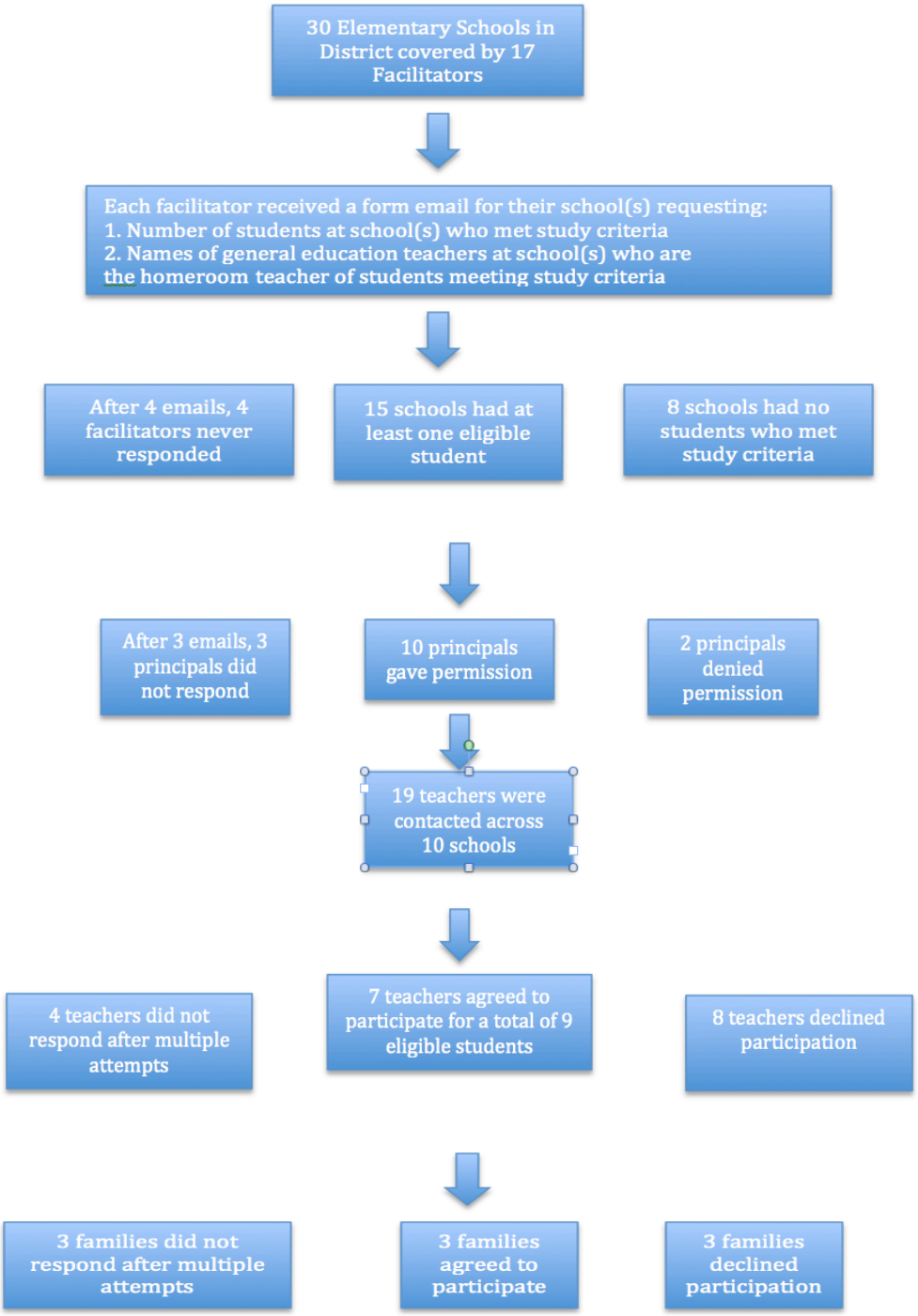

Figure 1. Response rate throughout the recruitment process.

Once all consent forms were obtained from a class, a date and time was coordinated with the teacher for the researcher to come to the school to conduct the

research. Classroom data were collected at the end of the spring semester, ensuring that students had almost an entire school year to allow for the formation of social networks and patterns of peer acceptance. Study procedures took approximately 30-45 minutes on the pre-determined date and time. During that time, all students participating in the study were read the assent form aloud and provided time to ask any questions before agreeing to begin the study. All students participating were administered the friendship survey, loneliness scale, friendship qualities questionnaire, and CATCH. Assistance was available to any student who has difficulty with writing. Students who had not provided consent to participate were asked to read or complete work at their desk or they had the option to put their heads down on their desk.

Teachers were asked to complete the Autism Inclusion Questionnaire and the Social Skills Rating System regarding the student with ASD in their class participating in the study. A parent version of the Social Skills Rating System was sent home to the primary guardian of the student with ASD with instructions to return questionnaire to the school or researcher in a sealed envelope.

The researcher also asked the primary guardian of each student with ASD for permission to obtain a copy of the psychoeducational report and Individualized Education Program (IEP) for the student with ASD from the school. These documents served to confirm the diagnosis of ASD of students participating in the study, as well as provided information on educational placement and cognitive abilities of the target student.

Data Analysis

All data were entered into PASW SPSS 20.0, with identifying information removed, by the researcher for cleaning and analyzing. The design of this study is a non-

experimental collective case study. Information obtained through this research was intended to provide detailed, specific accounts of particular circumstances rather than offering broad, generalized findings.

Chapter Four

Results

The data obtained through this collective case study will be presented first individually by classroom (Classroom One, Classroom Two, Classroom Three) as these data pertain to each of the variables being studied. Cross-case analyses will then be presented discussing similarities, differences, and themes found across the three classrooms to address each research question.

Classroom One

Target student one was a 10-year-old male in the fourth grade. He had a primary diagnosis of Asperger's with a secondary diagnosis of ADHD-Combined. He had received special education services under the eligibility category of Autism for one school year and four months. His cognitive abilities were above average (GAI = 121) as measured by the WISC-IV. According to his most recent Individualized Education Program (IEP), target student one had two objectives that targeted vocational skills (following directions and remaining on task) and two objectives targeting social skills (using appropriate conversation skills and discussing non-preferred topics appropriately). He received 20 minutes a day in the resource classroom to address social skills, 20 minutes a day in the co-teaching setting to address social skills, and 15 minutes once a day in the co-teaching setting to address behavior.

Within classroom one, 14 students (6 male, 8 female) including the target student participated in the study. Aggregated data were collected on a total of 27 students in the classroom (12 male, 15 female). Eight students in the classroom, including the target student, had a current IEP.

Social inclusion.

Indegrees.

Indegrees refers to the total number of friendship nominations received for each individual student (i.e., the number of peers who indicated the student as "someone they like to hang out with"). Within classroom one, students were found to be identified, on average, 3.18 times (N = 22, SD: 2.10, range 0-9 nominations) as someone whom others liked to "hang out with." The target student with ASD did not receive any nominations. The two students who the class identified as being friends with the target student with ASD did not participate in the study. Therefore, the indegrees value obtained for the target student with ASD may be lower than the indegrees value that may have been obtained, had the two peers participated in the research study. However, there is no way to know for certain whether the two peers would have nominated the target student with ASD.

Outdegrees.

Outdegrees refers to the total number of friendship nominations made by a particular student (i.e., the number of peers whom the student indicated as "someone they like to hang out with"). Within classroom one, students were found to identify, on average, 5.31 students (SD: 2.10; range 2-10) as someone whom they liked to "hang out with." The target student with ASD identified two students. In examining the outdegrees made by the target student with ASD, the two students (Peer A and Peer B) nominated by the target student with ASD did not nominate the target student in return. Peer A, nominated by the target student, nominated 5 students and Peer B nominated 10 students. This indicates that in providing equal to or more than the class average of outdegrees, the

student with ASD was not included in the outdegrees for these two peers, even though these were the only two peers identified by the student with ASD as someone he likes to hang out with.

Additionally, it should be noted that it is unclear whether the two peers identified by others as a friend of the target student not participating may have also impacted the outdegrees provided by the target student in that he did not nominate these two students as someone who he likes to "hang out with." It is unknown whether the two peers did not participate or were absent on the day the study took place. This raises the question of whether the student with ASD is able to identify students (who are identified by others to be his friend) as his friend accurately. Variables that may have impacted his ability to accurately identify friendships could include his understanding of the construct of friendship, whether the peers were physically present in the classroom at the time the study was conducted to provide a visual prompt or reminder, and the role of proximity in making friendship nominations of students with ASD (i.e., is a friend someone who is assigned to sit next to me, can a friend not be identified as a friend if they are not physically present at the time of the nomination, etc.).

Table 5

Indegrees and Outdegrees Values for Classroom One

	Student with ASD	Class		
		M	*SD*	Range
Indegrees (N = 22)	0	3.18	2.10	0-9
Oudegrees (N = 14)	2	5.31	2.10	2-10

Note. Indegrees refers to the total number of friendship nominations received for each individual student (i.e., the number of peers who indicated the student as "someone they like to hang out with"). Outdegrees refers to the total number of friendship nominations made by a particular student (i.e., the number of peers who the student indicated as "someone they like to hang out with").

Reciprocal top three friendship nomination.

The top-three reciprocal friendship indicates the percentage of peers who were included in a subject's top three list who also nominated that student reciprocally to their own top-three list. To account for students who did not participate in the study and who therefore did not provide social network data, those students were removed from the calculations and coded as missing data. Sixty-four percent (n = 9) of participating students were found to have 100% reciprocity of the friends nominated within their top three list, who also participated in the study. Thirty-six percent (n = 5) of participating students were found to have 0% reciprocity of the friends nominated within their top-three list, who also participated in the study. The target student with ASD was not found to have any reciprocal top-three friendship nominations. No missing data were recorded for this variable within classroom one, indicating that all participating students selected at least one other participating student as part of their top-three list nomination.

Best friend reciprocal.

The best friend reciprocal score indicates whether a student's nomination for "best friend" was reciprocated by the nominated student. This score is reported at 1 (best

friendship was reciprocated between two students) or 0 (best friendship was not reciprocated between two students). When a student who did not participate was nominated as a "best friend," that item was scored as missing data. Twenty-nine percent (n = 4) participating students were found to have a reciprocated nominated best friend. Twenty-one percent (n = 3) were found to not have a reciprocated nominated best friend. The target student with ASD did not have a reciprocated nominated best friend. Fifty percent (n = 7) of participating students nominated a student who did not participate in the study as their best friend; therefore, this variable was recorded as missing data for those particular students.

Social network variables.

Another variable to consider when examining how well students with ASD fit in within the social structure of the classroom is to examine their level of individual centrality, cluster centrality, and social network centrality, particularly as it compares to peers in the classroom.

Individual centrality.

Individual centrality refers to how well each student fits in within the social network of the classroom based on the number of times he was identified as belonging to any group. This value is generated by comparing the number of times a student was identified as belonging to a group to the average of the two highest individual centrality scores within the class. Individual centrality is then considered high (70% and above), medium (30-70%), or low (30% and below). For classroom one, two students were found to have low individual centrality, 14 students were found to have medium individual centrality, and 11 students were found to have high individual centrality. The target

student with ASD was found to have medium individual centrality.

He received a nomination as belonging to a group seven times (class mean = 10.74, SD = 3.34, range = 5 – 17). The number of nominations received as belonging to a group by the target student with ASD falls within one standard deviation of the class mean. The target student with ASD was identified as belonging to a cluster by 50% of the students in the classroom who completed the Friendship Survey. On five out of seven of the group identifications made, the three students identified within the cluster were listed as belonging to a group together. On one out of the seven group identifications made, the target student with ASD was listed with only one of the other students in the cluster. The target student with ASD did not identify himself as belonging to any cluster.

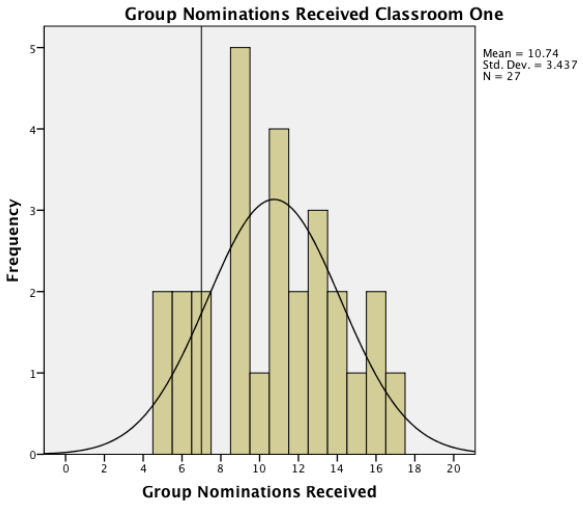

Figure 2. Distribution of nominations received of belonging to a social group in classroom one. The number of group nominations received for the student with ASD is marked by the vertical black line from the x-axis.

Cluster centrality.

Cluster centrality refers to the prominence of each cluster within the social structure of the classroom. This value is generated by computing the average of the two highest individual centrality scores within each cluster. This value is then compared to

the highest cluster centrality value found to determine whether each cluster centrality is considered high (70% and above), medium (30-70%), or low (30% and below). For classroom one, no cluster was found to have low centrality. Two clusters were found to have medium centrality and four clusters were found to have high cluster centrality. The cluster that the target student with ASD was found to belong to consisted of a total of three students and was found to have medium cluster centrality. The cluster centrality value for the cluster of the target student with ASD was 6.5 (class mean for the six clusters= 12.58, SD = 3.15, range = 6.5 – 15.5). While the cluster for the target student with ASD was found to have medium cluster centrality, the cluster centrality value was the lowest value of the six clusters within the classroom.

Social network centrality.

Social network centrality is determined by examining the individual and cluster centrality identifications for each student. Within classroom one, two students were found to be peripheral, 14 students were found to be secondary, and 11 students were found to be nuclear. The target student was found to be secondary. Within the cluster of the target student with ASD, one peer was found to be secondary and one peer was found to be peripheral.

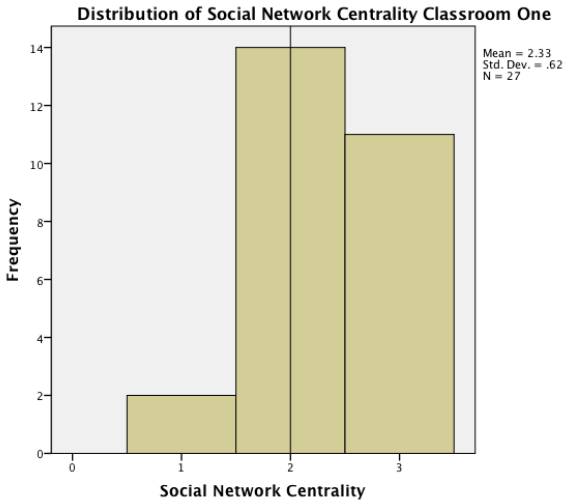

Figure 3. Distribution of social network centrality findings for classroom one. The social network centrality value for the student with ASD is marked by the vertical black line from the x-axis. 0 = Isolated; 1 = Peripheral; 2 = Security; 3 = Nuclear.

Table 6

Social Network Variable Findings Classroom One

Student	Gender	Individual Centrality	Cluster Centrality	Social Network Centrality
1	M	High	High	Nuclear
2	M	High	High	Nuclear
3	F	High	High	Nuclear
4	F	High	High	Nuclear
5	F	Medium	Medium	Secondary
6	F	Medium	High	Secondary
7	F	Medium	High	Secondary
8	F	Medium	High	Secondary
9	F	Medium	Medium	Secondary
10	F	Medium	Medium	Secondary
11	M	High	High	Nuclear
12	M	High	High	Nuclear
13	M	High	High	Nuclear
14	**M**	**Medium**	**Medium**	**Secondary**
15	F	High	High	Nuclear
16	M	Medium	High	Secondary
17	M	High	High	Nuclear
18	M	High	High	Nuclear
19	M	High	High	Nuclear
20	F	Medium	Medium	Secondary
21	F	Medium	High	Secondary
22	F	Medium	High	Secondary
23	F	Low	Medium	Peripheral
24	F	Medium	Medium	Secondary
25	F	Medium	Medium	Secondary
26	M	Medium	Medium	Secondary
27	M	Low	Medium	Peripheral

Note. Individual centrality refers to how well each student fits in within the social network of the classroom based on the number of times he or she was identified as belonging to any group. Cluster centrality refers to the prominence of each cluster within the social structure of the classroom. Social network centrality is determined by examining the individual and cluster centrality identifications for each student. The social network centrality findings for the target student with ASD is bolded.

CLASSROOM ONE CLUSTERS

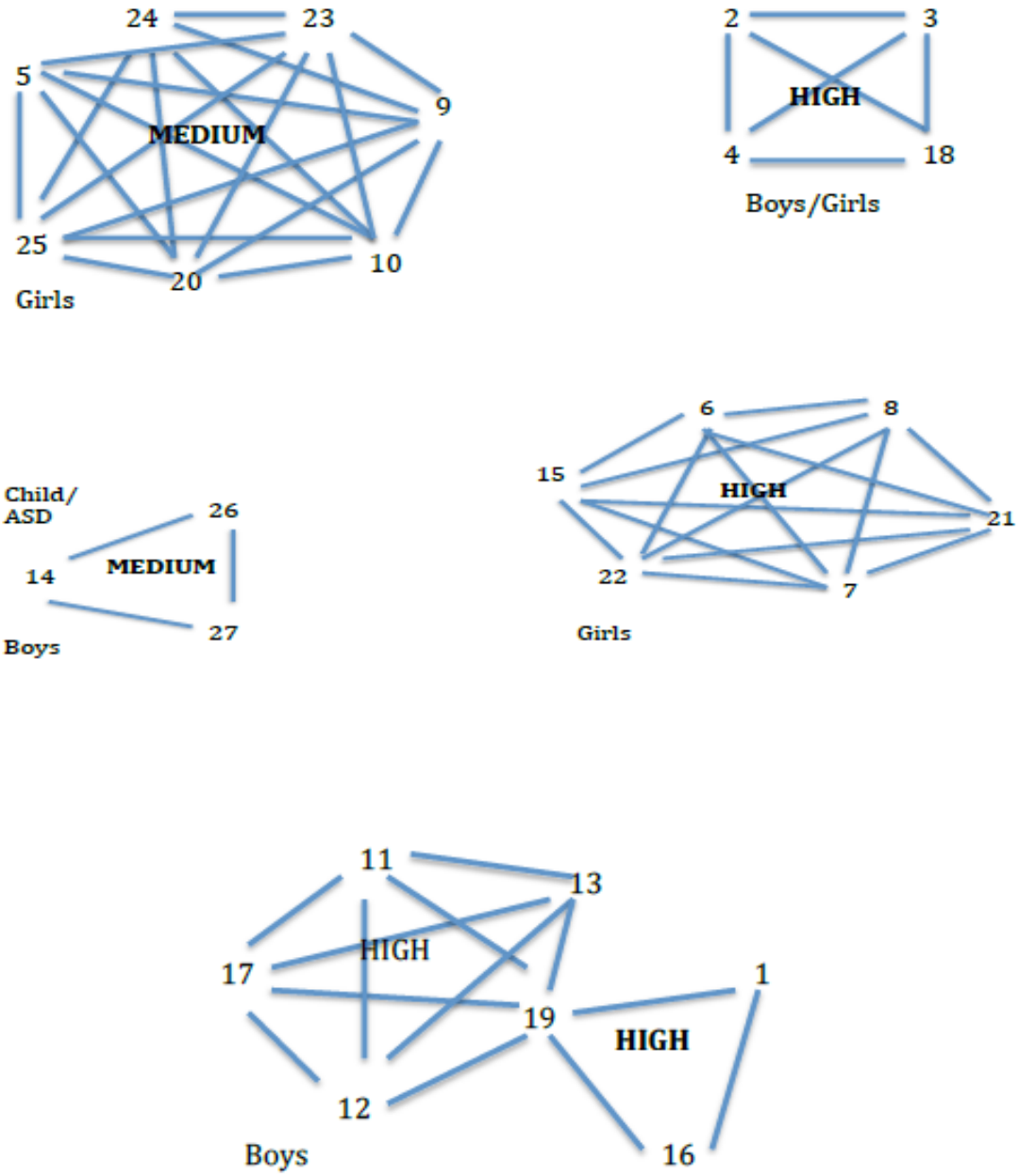

Figure 4. Social network map of classroom one. The student with ASD is student number 14.

Social skills.

The quality of social skills of the student with ASD was assessed through parent and teacher ratings on the Social Skills Rating System. Differences were found between parent and teacher reports in that the parent ratings were generally lower and indicated more deficits related to social skills and problem behaviors. As rated by the teacher, the target student with ASD was found to have average social skills as it relates to cooperation and assertion. Cooperation refers to his ability to comply with rules and directions. Assertion refers to his ability to initiate behaviors such as asking others for information, introducing oneself, and responding to the actions of others. He was found to have below average skills as it relates to self-control. Particular difficulties as it relates to self-control included difficulty controlling his temper in conflict situations with peers, compromising in conflict situations by changing his own ideas to reach an agreement, responding appropriately to peer pressure, responding appropriately to teasing by peers, controlling his temper in conflict situations with adults, receiving criticism well, cooperating with peers without prompting, and responding appropriately when pushed or hit by other children. The target student received a score of "0" on each of these items, indicating that the student never demonstrated skills in these areas. He received a score of "1", indicating that he sometimes demonstrated skills in the following areas: accepts peers' ideas for group activities and gets along with people who are different. His overall social skills, as rated by the teacher, were found to be slightly below average (standard score = 85, 16^{th} percentile).

Parent ratings revealed below average skills in the areas of cooperation, assertion, and self-control with average skills in the area of responsibility. His overall social skills,

as rated by the parent, were found to be below average (standard score = 66, <2nd percentile).

In the area of problem behaviors, teacher ratings indicated that the target student with ASD had more than average behavior difficulties related to externalizing behaviors. The teacher indicated that the target student frequently fought with others, threatened or bullied others, argued with others, talked back to adults when corrected, got angry easily, and had temper tantrums. He was rated to have average behaviors related to internalizing problems and hyperactivity. His overall problem behaviors, as rated by the teacher, were found to be above average (standard score = 127, 96th percentile). Parent ratings revealed more than average behavior difficulties related to externalizing and hyperactivity. He was rated to have average behaviors related to internalizing problems. His overall problem behaviors, as rated by the parent, were found to be above average (standard score = 123, >98th percentile).

Loneliness.

To assess feelings of loneliness, students completed the Loneliness Scale (Asher et al., 1984). Total scores on the 16-item measure range from 16 to 80, with higher scores indicating greater levels of loneliness. On the Loneliness Scale, the target student with ASD obtained an overall score of 42 (class mean = 29.92, SD = 12.89, range = 16-51), which falls within one standard deviation of the class mean. A review of item scores indicated that the target student with ASD reported greater difficulties (outside of two standard deviations of the class mean) related to having many friends, finding a friend when needed, and getting along with other children. Some difficulty (outside of one standard deviation of the class mean) was reported with regard to making new friends at

school, working well with other children, getting other children to like him, and being well-liked by the children in his class. Relative self-reported strengths, and ratings obtained similar to the peers in his class, were noted related to having people to talk to, has others to play with, does not feel left out, has someone to go to when he needs help, gets along with others, has friends, and no direct reports of feelings of loneliness.

Table 7

Loneliness Scale Responses by Item for Classroom One

Item	Target Student Response	Class	
		M	*SD*
It's easy for me to make new friends at school.	4	1.92	1.12
I have nobody to talk to.	1	1.83	1.34
I'm good at working with other children.	2	1.31	0.48
It's hard for me to make friends.	3	1.85	1.14
I have lots of friends.	5	1.62	1.33
I feel alone.	2	2.08	1.50
I can find a friend when I need one.	4	1.46	0.97
It's hard to get other kids to like me.	4	2.08	1.44
I don't have anyone to play with.	1	1.62	0.96
I get along with other kids.	3	1.46	0.18
I feel left out of things.	3	2.15	1.46
There's nobody I can go to when I need help.	1	1.85	1.35
I don't get along with other children.	3	1.85	1.28
I'm lonely.	1	1.69	1.49
I am well-liked by the kids in my class.	4	1.85	1.14
I don't have any friends.	1	1.23	0.60
Total	**42**	**29.92**	**12.89**

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which positive items were reverse scored and higher ratings indicate higher levels of loneliness.

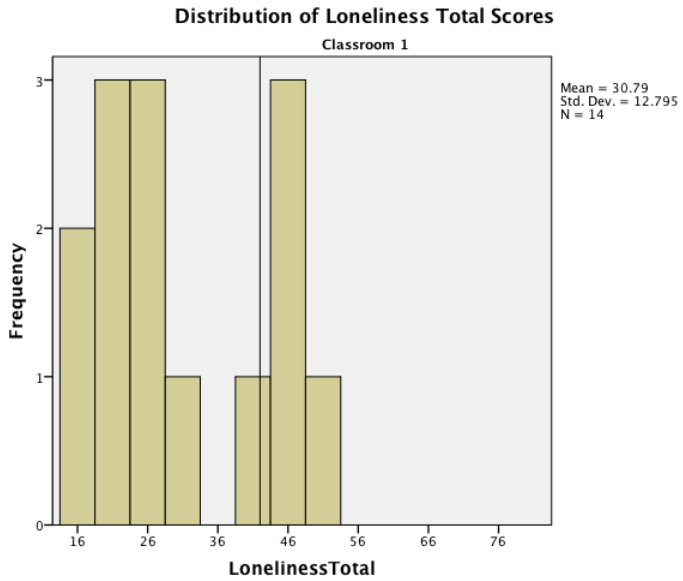

Figure 5. Distribution of Loneliness Scale total scores for classroom one. The total score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of loneliness.

Qualities of Friendship.

To assess the quality of friendships among the students within the classroom, each student completed the Friendship Qualities Scale (Bukowski et al., 1994) regarding a self-identified best friendship with a peer. Within classroom one, six students identified a student from within the classroom as their best friend while eight students identified a student not within the classroom as their best friend. The target student with ASD selected a female peer not within the classroom for completing the rating scale. Scores within each subscale can range from one to five, with higher scores indicating more positive qualities of friendship in the areas of companionship, help, security, and closeness and lower scores indicating more positive qualities of friendship in the area of conflict.

Within the subscale of companionship, the target student with ASD reported an overall score outside of two standard deviations of the class mean. He indicated that his

best friend thinks of fun things for them to do together. However, he indicated across multiple items that he and his best friend do not spend much time together or make small talk.

Table 8

Friendship Qualities Companionship Subscale Responses by Item for Classroom One

Subscale Item	Target Student Response	Class *M*	*SD*
Companionship	**2.25**	**4.21**	**0.56**
My friend and I spend all of our free time together.	2	4.31	1.03
My friend thinks of fun things for us to do together.	4	4.46	0.78
My friend and I go to each other's houses after school and on weekends.	2	3.54	1.39
Sometimes my friend and I just sit around and talk about things like school, sports, and things we like.	1	4.54	0.78

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which higher ratings indicate higher levels of companionship.

Figure 6. Distribution of Friendship Qualities companionship subscale scores for classroom one. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of companionship.

Within the subscale of conflict, the target student with ASD reported an overall score within one standard deviation of the class mean and his overall score was found to indicate slightly less conflict than the class average. Ratings across items indicated that

he rarely got into fights with his best friend and reported overall low levels of conflict.

Table 9

Friendship Qualities Conflict Subscale Responses by Item for Classroom One

Subscale Item	Target Student Response	Class *M*	Class *SD*
Conflict	**1.5**	**1.90**	**1.02**
I can get into fights with my friend.	2	2.31	1.55
My friend can bug me or annoy me even though I ask him not to.	1	1.46	.31
My friend and I can argue a lot.	2	2.00	1.63
My friend and I disagree about many things.	1	1.85	.99

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which lower ratings indicate lower levels of conflict.

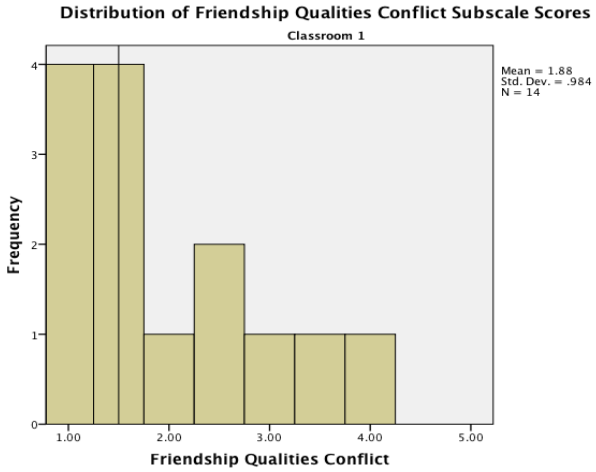

Figure 7. Distribution of Friendship Qualities conflict subscale scores for classroom one. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Lower scores indicate lower levels of conflict.

Within the help subscale, the target student with ASD reported an overall score outside of two standard deviations of the class mean. He indicated that his best friend would generally help him. However, he did not indicate that his best friend would help him specifically as it related to if he was having trouble with something or if other kids were bothering him.

Table 10

Friendship Qualities Help Subscale Responses by Item for Classroom One

Subscale Item	Target Student Response	Class *M*	Class *SD*
Help	**1.6**	**4.22**	**0.93**
If I forgot my lunch or needed a little money, my friend would loan it to me.	1	3.15	1.91
My friend helps me when I am having trouble with something.	1	4.54	0.88
My friend would help me if I needed it.	4	4.77	0.60
If other kids were bothering me, my friend would help me.	1	4.58	0.79
My friend would stick up for me if another kid was causing me trouble.	1	4.15	1.46

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which higher ratings indicate higher levels of help.

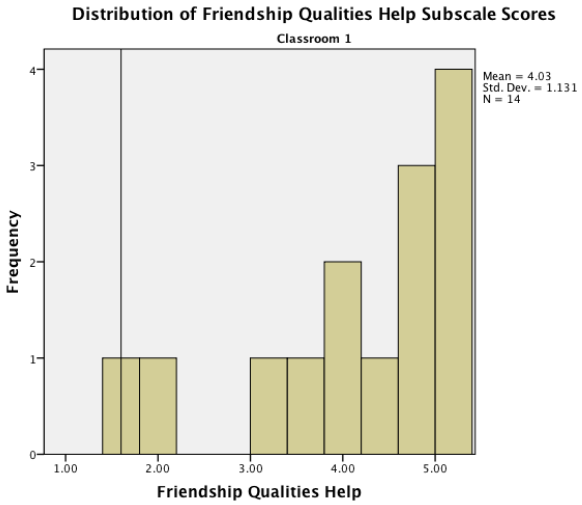

Figure 8. Distribution of Friendship Qualities help subscale scores for classroom one. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of help.

Within the security subscale, the target student with ASD reported an overall score within two standard deviations of the class mean. He indicated that he and his best friend were able to make up easily if they had a disagreement or did something that bothered the other. However, he reported that he did not typically talk to his best friend

about problems at school or home or about things that were bothering him.

Table 11

Friendship Qualities Security Subscale Responses by Item for Classroom One

Subscale Item	Target Student Response	Class *M*	*SD*
Security	**3.4**	**4.52**	**0.67**
If I have a problem at school or at home, I can talk to my friend about it.	2	4.38	1.19
If there is something bothering me, I can tell my friend about it even if it is something I cannot tell other people.	1	4.50	0.80
If I said I was sorry after I had a fight with my friend, he would still stay mad at me.	5	4.15	1.52
If my friend and I do something that bothers the other one of us, we can make up easily.	4	4.77	0.60
If my friend and I have a fight or argument, we can say 'I'm sorry' and everything will be alright.	5	4.77	0.60

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which higher ratings indicate higher levels of security.

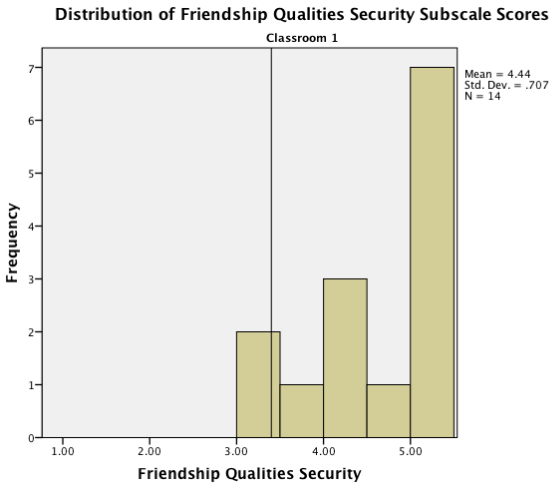

Figure 9. Distribution of Friendship Qualities security subscale scores for classroom one. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of security.

Within the closeness subscale, the target student with ASD reported an overall score within one standard deviation of the class mean. He indicated that he enjoyed being with his best friend, thought about his best friend when she was not around, would miss

his best friend if she moved away, and felt as though his best friend was happy for him when he did a good job. However, he indicated that his best friend only sometimes did things for him that made him feel special.

Table 12

Friendship Qualities Closeness Subscale Responses by Item for Classroom One

Subscale Item	Target Student Response	Class *M*	Class *SD*
Closeness	**4.2**	**4.66**	**0.49**
If my friend had to move away, I would miss him.	5		
I feel happy when I am with my friend.	5	4.92	0.28
I think about my friend even when my friend is not around.	4	4.38	1.19
When I do a good job at something, my friend is happy for me.	4	4.62	0.87
Sometimes my friend does things for me, or makes me feel special.	3	4.38	1.26

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which higher ratings indicate higher levels of closeness.

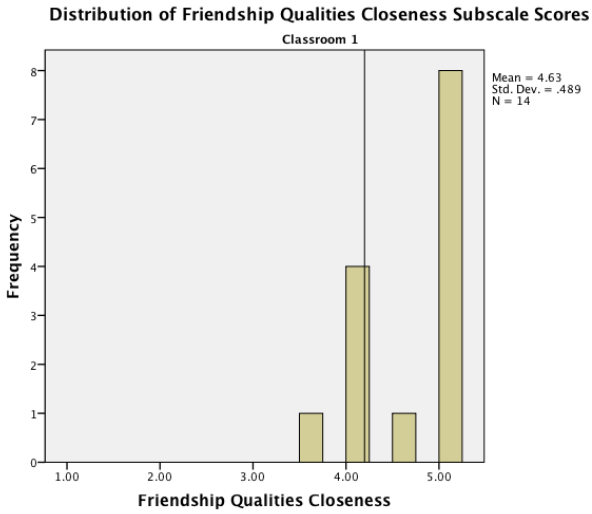

Figure 10. Distribution of Friendship Qualities closeness subscale scores for classroom one. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of closeness.

Attitudes towards children with disabilities.

To assess the attitudes of students in the classroom towards children with disabilities, each participating student completed the Chedoke Attitudes Toward Children with Handicaps Scale (CATCH; Rosenbaum et al., 1986). This measure assesses the areas of affective, behavioural, and cognitive and also reports an overall score. Subscale and total scores range from 12-48, with higher scores indicating more positive attitudes. The target student with ASD also completed the CATCH. It should be noted that although information regarding the target student with ASD's awareness of his disability was not formally obtained as part of the research study, the target student with ASD within classroom one approached the researcher while completing this rating scale to disclose that he had a disability called ADHD. He appeared eager to disclose this information and appeared as though he was able to relate to the items of this measure. The class ratings, as well as the specific ratings of the target student with ASD, are discussed in further detail below.

Within classroom one, students reported an overall mean of 26.47 (SD – 6.57) in the area of affective, indicating moderately negative attitudes in this area. A review of items indicates that as a class, students report feeling sorry for children with disabilities and feeling upset when they see a child with a disability. Additionally, class average ratings indicate that students might have worried if a child with a disability sat next to them in class, would not like having a child with a disability live next door to them, would not like a friend with a disability as much as their other friends, would not be pleased to be invited to the birthday party of a child with a disability, would not feel good doing a school project with a child with a disability, and would not enjoy being with a

child with a disability. More positive ratings were found related to not being afraid of a child with a disability, being happy having a child with a disability as a special friend, not being scared being near someone with a disability, and not being embarrassed being invited to the birthday party of a child with a disability. Interestingly, the target student with ASD reported slightly more than one standard deviation higher than the class mean in regard to his attitudes toward children with disabilities. He did indicate that he felt sorry for children with disabilities.

Table 13

CATCH Affective Subscale Responses by Item for Classroom One

Subscale Item	Target Student Response	Class *M*	*SD*
Affective Total	**34.17**	**26.47**	**6.57**
I would not worry if a child with a disability sat next to me in class.	4	2.54	1.13
I feel sorry for children with disabilities.	2	1.38	0.87
I would be afraid of a child with a disability.	4	3.38	0.96
I would like having a child with a disability live next door to me.	3	2.62	1.12
I would be happy to have a child with a disability as a special friend.	3	3.08	1.04
I would not like a friend with a disability as much as my other friends.	4	2.46	1.13
I would be pleased if a child with a disability invited me to his house.	3	2.69	1.25
I would feel good doing a school project with a child with a disability.	3	2.62	1.19
Being near someone who has a disability scares me.	4	3.38	1.04
I would be embarrassed if a child with a disability invited me to his birthday party.	4	3.15	0.90
I would enjoy being with a child with a disability.	3	2.54	1.20
I feel upset when I see a child with a disability.	4	1.92	1.11

Note. Items were scored on a Likert scale from 1 ‘definitely disagree’ to 4 ‘definitely agree’ in which higher ratings indicate more positive affective attitudes.

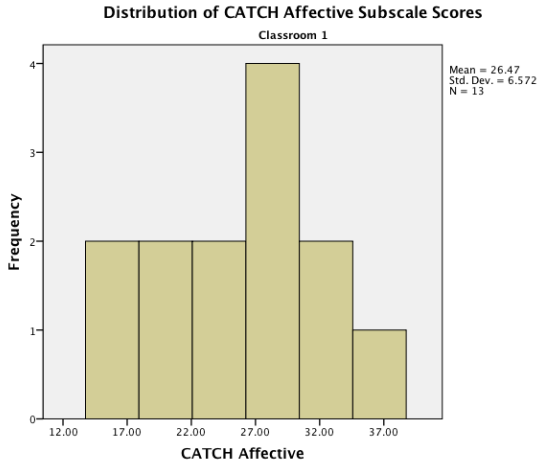

Figure 11. Distribution of CATCH affective subscale scores for classroom one. The subscale score for the student with ASD is not included. Higher scores indicate more positive affective attitudes.

Students reported an overall mean of 30.79 (SD – 4.79) in the area of behavioural, indicating moderately positive attitudes in this area. A review of items indicates that as a class, students reported that they wouldn't know what to say to a child with a disability, wouldn't talk to a child with a disability they didn't know, wouldn't invite a child with a disability to sleep over at their house, wouldn't tell their secrets to a child with a disability, and wouldn't miss recess to keep a child with a disability company. More positive ratings were found related to introducing a child with a disability to their friends, sticking up for a child with a disability being teased, inviting a child with a disability to their birthday party, would not try to stay away from a child with a disability, would sit next to a child with a disability, would look at a child with a disability, and would go to the house of a child with a disability to play. The target student with ASD reported an overall score that was found to be slightly more positive than the class mean. He did indicate that he would not know what to say to a child with a disability and would not tell his secrets to a child with a disability.

Table 14

CATCH Behavioural Subscale Responses by Item for Classroom One

Subscale Item	Target Student Response	Class *M*	Class *SD*
Behavioural Total	**32.50**	**30.79**	**4.79**
I would not know what to say to a child with a disability.	2	2.38	1.26
I would stick up for a child with a disability who was being teased.	3	3.92	0.28
I would invite a child with a disability to my birthday party.	3	3.31	0.95
I would talk to a child with a disability I didn't know.	3	2.92	1.04
I would try to stay away from a child with a disability.	4	3.69	0.63
In class I wouldn't sit next to a child with a disability.	4	3.08	1.12
I try not to look at someone who has a disability.	4	3.23	1.01
I would invite a child with a disability to sleep over at my house.	3	2.38	1.39
I would tell my secrets to a child with a disability.	2	2.23	1.17
I would not go to the house of a child with a disability to play.	4	3.69	0.48
I would miss recess to keep a child with a disability company.	3	2.85	1.21

Note. Items were scored on a Likert scale from 1 'definitely disagree' to 4 'definitely agree' in which higher ratings indicate more positive behavioural attitudes.

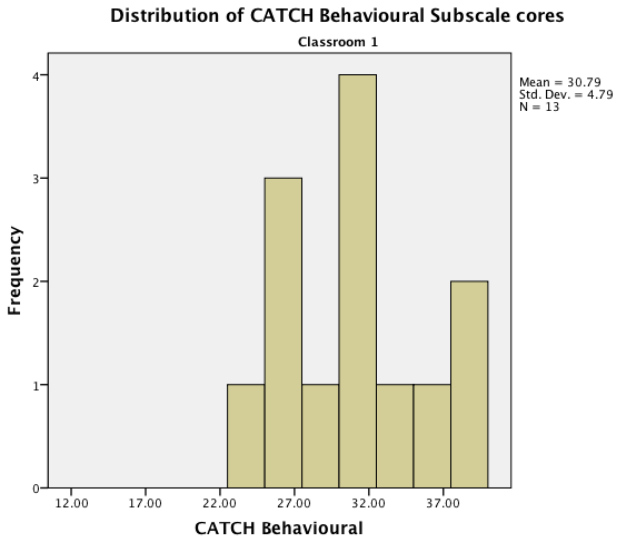

Figure 12. Distribution of CATCH behavioural subscale scores for classroom one. The subscale score for the student with ASD is not included. Higher scores indicate more positive behavioural attitudes.

Students reported an overall mean of 28.73 (SD – 4.40) in the area of cognitive, indicating moderately negative attitudes in this area. A review of items indicates that as a class, students reported that children with disabilities have difficulty doing things for themselves, want lots of attention from adults, feel sorry for themselves, don't know how to behave properly, are often sad, and need lots of help to do things. More positive ratings were found related to children with disabilities in the items of like to play, like to make new friends, are as happy as children without disabilities, have fun, are interested in lots of things, and can make new friends. The target student with ASD reported an overall score that was found to be slightly more positive than the class mean. He indicated that children with disabilities want lots of attention from adults and don't know how to behave properly.

Table 15

CATCH Cognitive Subscale Responses by Item for Classroom One

Subscale Item	Target Student Response	Class *M*	*SD*
Cognitive Total	**32.50**	**28.73**	**4.40**
Children with disabilities like to play.	3	3.77	0.44
Children with disabilities want lots of attention from adults.	2	2.00	1.08
Children with disabilities don't like to make friends.	3	3.46	0.78
Children with disabilities feel sorry for themselves.	3	2.54	1.13
Children with disabilities are as happy as I am.	3	3.08	0.76
Children with disabilities know how to behave properly.	2	2.25	0.97
Children with disabilities don't have much fun.	4	3.23	0.93
Children with disabilities are interested in lots of things.	4	3.31	1.11
Children with disabilities are often sad.	4	2.85	0.90
Children with disabilities can make new friends.	4	3.23	0.93
Children with disabilities need lots of help to do things.	4	1.92	1.04

Note. Items were scored on a Likert scale from 1 'definitely disagree' to 4 'definitely agree' in which higher ratings indicate more positive cognitive attitudes.

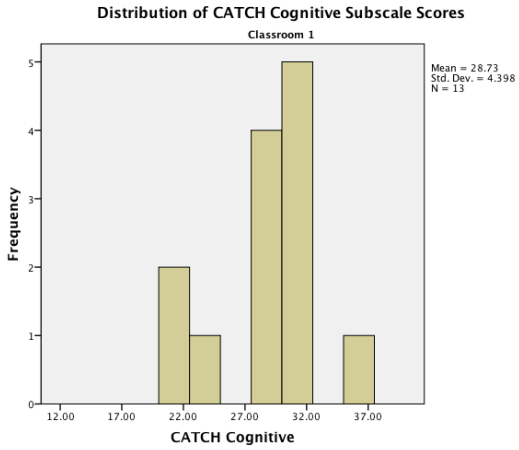

Figure 13. Distribution of CATCH cognitive subscale scores for classroom one. The subscale score for the student with ASD is not included. Higher scores indicate more positive cognitive attitudes.

General Education Teacher Factors.

The Autism Inclusion Questionnaire (AIQ; Segall, 2011) was completed to obtain demographic information for the general education teacher and also included items that assessed the experience level. The general education teacher within classroom one was a 44-year-old Caucasian female. She had six years teaching experience, previous experience teaching students with ASD, and her highest degree obtained was a Master's.

With regard to autism knowledge, the classroom teacher completed 15 items on the Autism Inclusion Questionnaire. A total score is found by adding the number of correct responses to the 15 items specifically assessing knowledge of autism. To account for responses of 'Don't Know', the total number of 'Don't Know' responses was added. A Percent Correct Score was then by calculated by dividing the Knowledge Total Score by the difference of the total number of items (15) and the total number of 'Don't Know' responses. She responded correctly to eight out of the 15 items, with a percent correct score of 73%. She responded 'Don't Know' to four of the items and responded incorrectly to three items.

Table 16

Teacher Responses on AIQ Knowledge for Classroom One

Correct (n = 8)	Incorrect (n = 3)	Don't Know (n = 4)
Genetic factors play an important role in the causes of ASDs.	The diagnostic criteria for Asperger's Syndrome are identical to High Functioning Autism.	Behavior therapy is an intervention likely to be effective for children with ASDs.
ASDs exist only in childhood.	ASDs are developmental disorders.	Medication can alleviate the core symptoms of ASDs.
Children with ASDs are very similar to one another.	The core deficits in ASDs are impaired social understanding, language abnormalities, and impaired sensory functioning.	Most children with ASDs have special talents or abilities.
Early intervention demonstrates no additional benefit to children with an ASD.		Traumatic experience very easily in life can cause an ASD.
If an intervention works for one child with an ASD, it will definitely work for another child with an ASD.		
In many cases, the cause of ASDs is unknown.		
With proper intervention, most children with an ASD will eventually "outgrow" the disorder.		
Most children with ASDs have cognitive abilities in the intellectually disabled range.		

Note. Teacher participant responded 'true,' 'false,' or 'don't know' to each item.

To assess attitudes toward the inclusion of students with ASD, the classroom teacher completed the 27 items on the Autism Inclusion Questionnaire, rated on a Likert-

scale from 1 (strongly agree) to 7 (strongly disagree). Scores provided on seven of the 27 items were used to calculate the attitude score. Total scores range from 7-49, with lower scores indicating more positive attitudes. The general education teacher from classroom one obtained a total attitude score of 7, indicating very positive attitudes towards the inclusion of students with ASD.

Furthermore, eleven of the items assess teacher attitude towards possible factors that may contribute to successful inclusion of students with ASD. The teacher indicated that the help of a paraprofessional as well as the attitude of staff are important factors that contribute to successful inclusion. Factors that were reported to not be important for the successful inclusion included the personality of the student, only teachers with extensive special education experience, the role of special schools, and encouraging students with an ASD to interact with typically developing peers. More neutral responses were reported with regard to the academic ability of the student with ASD, the severity of the disability, one-on-one intervention, the use of a reinforcement schedule, and medication and drug therapy.

The classroom teacher completed the twenty items within the "Classroom Behaviors" section of the AIQ to rate various behaviors related to how disruptive they would be in the classroom. Items are rated on a Likert scale from 1 (highly disruptive) to 5 (not at all disruptive). A total score of 53 was obtained by adding the score of each item. Specific ratings are provided in the table below. The target student in classroom one was reported, based on teacher ratings on the SSRS problem behaviors, to very often talk back to adults when corrected (disruptive) and have temper tantrums (highly disruptive). He was reported to sometimes be easily distracted (somewhat disruptive), show anxiety

about being with a group of children (disruptive), not listen to what others say (somewhat disruptive), and fidget or move excessively (disruptive).

Table 17

Teacher Ratings on AIQ Classroom Behaviors for Classroom One

Highly Disruptive	Disruptive	Somewhat Disruptive	Slightly Disruptive	Not at all Disruptive
Aggression	High levels of activity	Aloofness	Strange or unusual body movements	Eye contact avoidance
Screaming/ crying/ tantruming	Inappropriate emotionality	Difficulty in reciprocal conversation		Lack of peer relations
	Non-compliance	Fear of harmless objects		
	Off-task behavior	Poor peer relations		
	Preoccupation with touching/ smelling/tasting	Preoccupation with object/toy		
	Problems with non-verbal	Resistance/negative reaction to changes in schedule		
	Repetitive/ bizarre/ echolalic speech	Sensitivity to sounds		
	Rudeness in making requests			

Note. Each behavior was rated on a Likert scale from 'highly disruptive' to 'not at all disruptive.'

The 37 items within the 'Classroom Practices' section of the AIQ were completed by the classroom teacher to assess awareness and use of classroom practices and also to

find out information regarding how effective she perceived various practices to be in the classroom. The teacher indicates whether or not she has heard of each strategy (yes or no). She was then asked to indicate whether she has used each particular strategy (currently using, used in the past, or never used) as well as how effective she finds that strategy to be (very effective, effective, somewhat effective, not effective). For teacher one, a total awareness score of 19 was obtained, which takes into consideration scores on each of the 37 items. The total use score weighs each item based on where it falls in relationship to being evidence-based (Segall, 2008; Simpson, 2005). A total use score of 10 was obtained with current or past use reported for Picture Exchange Communication System (PECS), augmentative and alternative communication (AAC), assistive technology, social stories, and sensory integration.

In addition to the evidence-based practices, additional items were included related to peer/social skills, classroom modifications, instructional techniques, and behavior management strategies.

Table 18

Teacher Ratings on AIQ Use of Strategies for Classroom One

Currently Using	Used in the past	Never used
Direct instruction of social skills$_1$	Educating peers about ASD$_1$	Peer initiation strategies$_1$
Preferential seating$_2$	Peer tutoring strategies$_1$	Providing students a 'home base'$_2$
Extra time on assignments$_3$	Providing a list of schedule changes$_2$	Priming$_3$
Prompting$_3$	Providing a list of classroom expectations$_2$	Visual activity schedules$_3$
Behavior contract$_4$	Edible reinforcement$_4$	Functional Behavior Assessment$_4$
Choice making$_4$	Token economies$_4$	
Verbal reinforcement$_4$		

Note. The teacher responded to each item 'currently using,' 'used in the past,' or 'never used.' 1 = peer/social skills; 2 = classroom modifications; 3 = instructional techniques; 4 = behavior management strategies.

The only strategy that was rated as 'very effective' was extra time to complete assignments. Strategies rated as 'effective' included assistive technology, choice making, educating typically developing students about ASD, peer tutoring, preferential seating, prompting techniques, providing a list of teacher expectations for in-class behavior, sensory integration, social stories, and verbal reinforcement/praise. Strategies rated as 'somewhat effective' included AAC, behavior contract, direct instruction of social skills, edible reinforcement, facilitated communication, PECS, providing a list of schedule changes for the school day, and token economies. None of the strategies were rated as 'not effective.'

Classroom 2

Target student two was a 10-year-old male in the fourth grade. He had a primary diagnosis of Mild Autistic/Pervasive Developmental Disorder-Not Otherwise Specified with a secondary diagnosis of ADHD-Combined. He had received special education services under the eligibility category of Autism since before entering kindergarten. His cognitive abilities were average (MPI = 102) as measured by the Kaufman Assessment Battery for Children, Second Edition (KABC-II). According to his most recent IEP, target student two had four objectives that target communication skills (answering "wh" questions regarding a passage, answering inferential questions regarding a passage, formulating grammatically correct sentences, and responding on topic to a peer), two objectives targeting writing skills (respond to a prompt in multi-paragraph form with correct paragraph form and correct grammar), and three objectives targeting social/vocational skills (active participant in group work, stay on task, and come to class prepared). He received 30 minutes a day in the resource classroom to address writing skills, 15 minutes a day in the resource setting to address social/adaptive skills, and 15 minutes once a day in the co-teaching setting to address social/adaptive skills.

Within classroom two, 19 students (11 male, 8 female) including the target student participated in the study. Data were collected on a total of 29 students in the classroom (15 male, 14 female). Three students in the classroom, including the target student, had a current IEP.

Social inclusion.

Indegrees.

Within classroom two, students were found to be identified, on average, 5.75 times (N = 28, SD: 3.66, range 0-16 nominations) as someone whom others liked to "hang out with." The target student with ASD received three nominations. Two male peers identified him as their "best friend." Aggregated classroom data confirmed that these three students belonged to a cluster together. A third female peer listed him as someone who she "hangs out with."

Outdegrees.

Within classroom two, students were found to identify, on average, 8.94 students (SD: 3.35; range 2-14) as someone with whom they liked to "hang out." The target student with ASD identified seven students. In examining the outdegrees made by the target student with ASD, two of the seven students whom he selected were the two students who had also selected him. Two of the other students selected by the target student did not participate in the study and three of the other students selected by the target student did not reciprocate the nomination. Three of the students were female and two were male. Two of the peers had nuclear social network status with one being secondary and two being peripheral.

Table 19

Indegrees and Outdegrees Values for Classroom Two

	Student with ASD	Class		
		M	*SD*	Range
Indegrees (N = 29)	3	5.75	3.66	0-16
Oudegrees (N = 19)	7	8.94	3.35	2-14

Note. Indegrees refers to the total number of friendship nominations received for each individual student (i.e., the number of peers who indicated the student as "someone they like to hang out with"). Outdegrees refers to the total number of friendship nominations made by a particular student (i.e., the number of peers who the student indicated as "someone they like to hang out with").

Reciprocal top three friendship nomination.

Eleven percent (n = 2) of participating students were found to have 100% reciprocity of the friends nominated within their top three-list, who also participated in the study. Twenty-one percent (n = 4) were found to have 50% reciprocity and 21% (n = 4) were also found to have 33% reciprocity. Forty-seven percent (n = 9) of participating students were found to have 0% reciprocity of the friends nominated within their top three list, who also participated in the study. The target student with ASD was found to have 33% reciprocity indicating that one out of three friends whom he selected as being within his top three list reciprocated that nomination. No missing data was recorded for this variable within class two indicating that all participating students selected at least one other participating student as part of their top-three list nomination.

Best friend reciprocal.

Twenty-six percent (n = 5) participating students were found to have a reciprocated nominated best friend. Forty-seven percent (n = 9) were found to not have a reciprocated nominated best friend. The target student with ASD was found to have a reciprocated nominated best friend. Forty-seven percent (n = 9) of participating students

nominated a student who did not participate in the study as their best friend; therefore, this variable was recorded as missing data for those particular students.

Social network variables.

Individual centrality.

For classroom two, a review of the distribution of data for the number of times each student was nominated as belonging to a group identified two outliers. Two students were found to have exceptionally high group nominations with scores of 36 and 40. While the class range when all participants were included was found to be 1-40, the class range taking into consideration these outliers is found to be 1-27. In reviewing the specific group nominations for these two students, it was found that two other peers in the class had provided a large number of two-person clusters, continuously providing one of these students within each two-person cluster. For example, for a group consisting of students one, two, three, and four, these students listed multiple groups describing these four students such as the following: 1,2; 1,3; 1,4; 1, 2, 3, 4. Each group listed did not provide a unique group but rather just further documented the individual relationships of each person within the identified group.

The two outliers impacted the individual, cluster, and social network centrality values for each participant because those values are determined by comparing the individual and cluster centrality scores for each participant to those with the highest values in the classroom. This resulted in few students being considered nuclear or secondary, when other forms of data including the social clusters and the group nominations for other students suggested that more students were nuclear or secondary. Therefore, the two outlier values were not used when calculating the individual, cluster,

and social network centrality scores for the other participants in the class.

Using the adjustments noted above, nine students were found to have low individual centrality, 11 students were found to have medium individual centrality, and nine students were found to have high individual centrality. The target student with ASD was found to have medium individual centrality. He received a nomination as belonging to a group nine times (class mean = 14.14, SD = 9.95, range = 1 – 40). The target student with ASD was identified as belonging to a cluster by 42% of the students in the classroom who completed the Friendship Survey. On three out of seven of the group identifications made, the three students identified within the cluster were listed as belonging to a group together. On four out of the seven group identifications made, the target student with ASD was listed with only one of the other students in the cluster (his self-reported best friend). The target student with ASD identified himself as belonging to one cluster, consisting of the student he identified as his best friend, and consistent with peer reports of whom the target student spends time with in class.

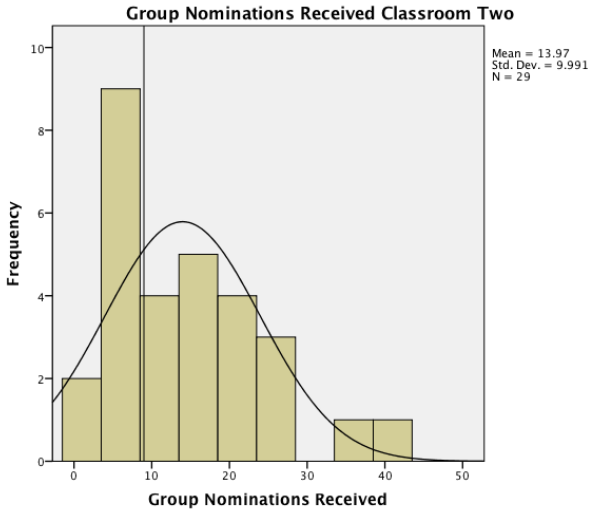

Figure 14. Distribution of nominations received belonging to a social group classroom two. The number of group nominations received for the student with ASD is marked by the vertical black line from the x-axis.

Cluster centrality.

For classroom two, no cluster was found to have low centrality. Four clusters were found to have medium centrality and two clusters were found to have high cluster centrality. The cluster that the target student with ASD was found to belong to consisted of a total of three students and was found to have medium cluster centrality. The cluster centrality value for the cluster of the target student with ASD was 10 (class mean for the six clusters= 19.58, SD = 9.54, range = 9 – 133.5). While the cluster for the target student with ASD was found to have medium cluster centrality, the cluster centrality value was the second lowest value of the six clusters within the classroom.

Social network centrality.

Within classroom two, nine students were found to be peripheral, 11 students were found to be secondary, and nine students were found to be nuclear. The target student was found to be secondary. Within the cluster of the target student with ASD, one peer was found to be secondary and one peer was found to be peripheral.

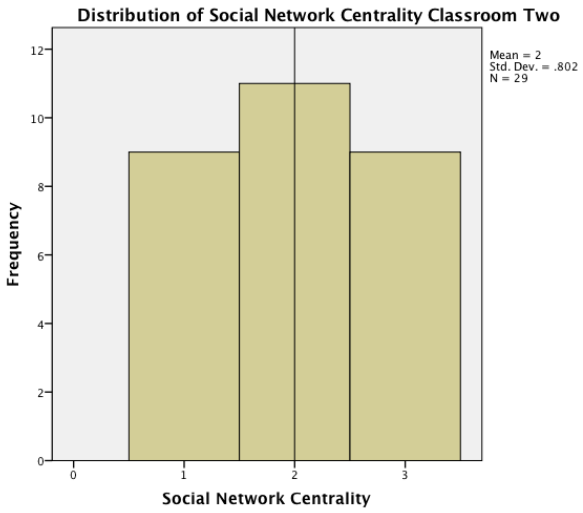

Figure 15. Distribution of social network centrality findings for Classroom Two. The social network centrality value for the student with ASD is marked by the vertical black line from the x-axis. 0 = Isolated; 1 = Peripheral; 2 = Security; 3 = Nuclear.

Table 20

Social Network Variable Findings for Classroom Two

Student	Gender	Individual Centrality	Cluster Centrality	Social Network Centrality
1	M	High	High	Nuclear
2	M	High	High	Nuclear
3	M	High	High	Nuclear
4	F	Low	Medium	Peripheral
5	M	Low	High	Peripheral
6	**M**	**Medium**	**Medium**	**Secondary**
7	F	Medium	Medium	Secondary
8	M	High	High	Nuclear
9	M	High	High	Nuclear
10	M	Medium	Medium	Secondary
11	M	Medium	High	Secondary
12	F	Medium	Medium	Secondary
13	F	High	High	Nuclear
14	F	Medium	Medium	Secondary
15	M	Low	Medium	Peripheral
16	M	Medium	High	Secondary
17	M	Low	High	Peripheral
18	F	High	High	Nuclear
19	F	High	High	Nuclear
20	M	Low	High	Peripheral
21	M	High	High	Nuclear
22	M	Low	High	Peripheral
23	F	Medium	Medium	Secondary
24	M	Medium	Medium	Secondary
25	F	Low	Medium	Peripheral
26	F	Medium	Medium	Secondary
27	F	Medium	High	Secondary
28	F	Low	High	Peripheral
29	F	Low	High	Peripheral

Note. Individual centrality refers to how well each student fits in within the social network of the classroom based on the number of times he or she was identified as belonging to any group. Cluster centrality refers to the prominence of each cluster within the social structure of the classroom. Social network centrality is determined by examining the individual and cluster centrality identifications for each student. The social network centrality findings for the target student with ASD is bolded.

CLASSROOM 2 CLUSTERS

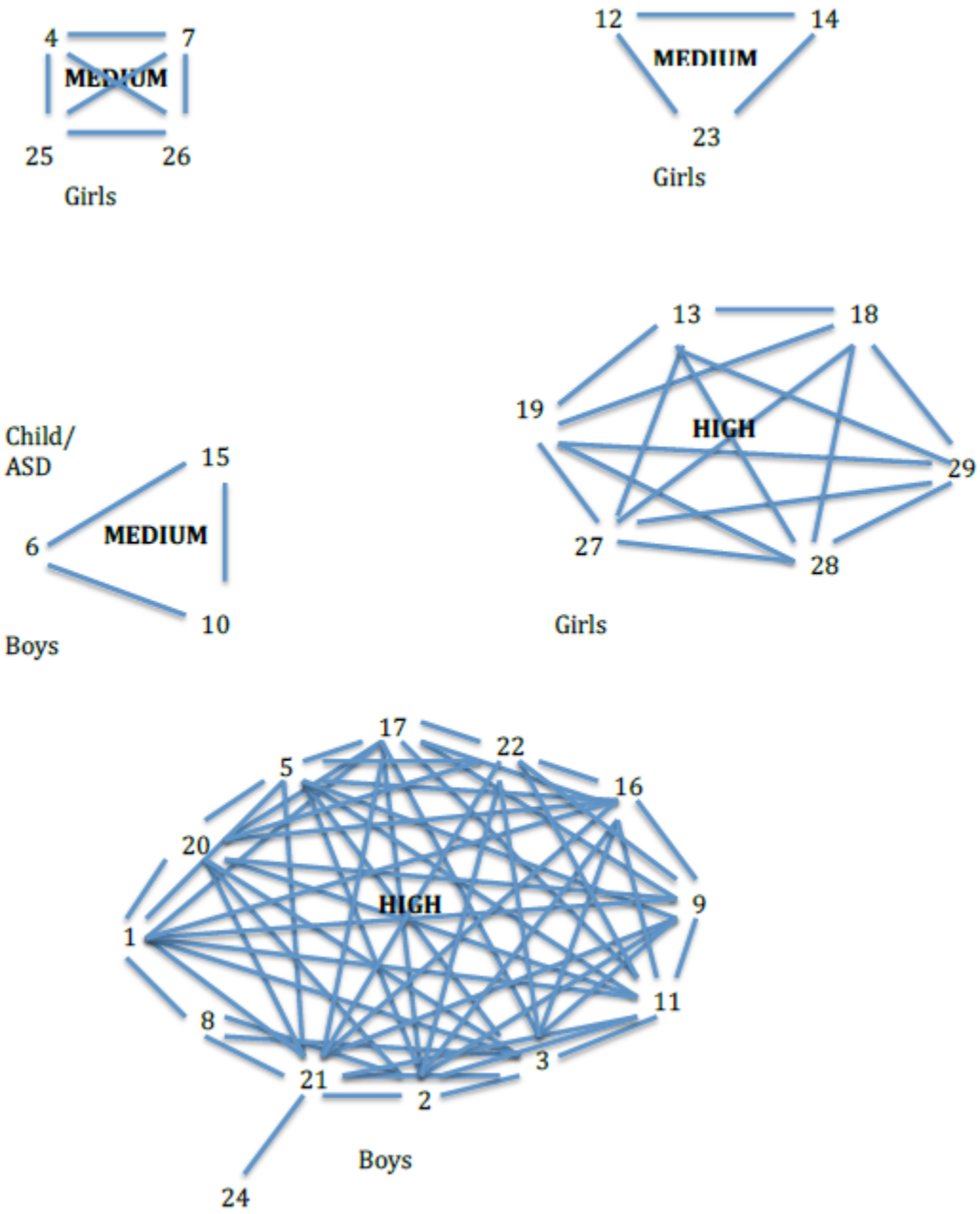

Figure 16. Social network map of classroom two. The student with ASD is student number 6.

Social skills.

Once again, differences were found between parent and teacher reports in that the parent ratings were found to be lower and indicated more deficits related to social skills and problem behaviors. As rated by the teacher, the target student with ASD was found to have average social skills as it relates to cooperation and self-control. He was found to have below average skills as it relates to assertion. Particular difficulties as it relates to assertion included initiating conversations with peers, appropriately telling you when he thinks you have treated him unfairly, giving compliments to peers, volunteering to help peers with classroom tasks, and joining ongoing activity or group without being told to do so. The target student received a score of "0" on each of these items, indicating that he never demonstrated skills in these areas. He received a score of "1", indicating that he sometimes demonstrated skills in the following areas: introduces himself to new people without being told, appropriately questions rules that may be unfair, invites others to join in activities, and makes friends easily. His overall social skills, as rated by the teacher, were found to be average (standard score = 97, 42nd percentile).

Parent ratings revealed below average skills in the areas of cooperation, assertion, responsibility, and self-control. His overall social skills, as rated by the parent, were found to be below average (standard score = 62, <2nd percentile).

In the area of problem behaviors, teacher ratings indicated that the target student with ASD had average behaviors related to externalizing problems, internalizing problems, and hyperactivity. His overall problem behaviors, as rated by the teacher, were found to be above average (standard score = 102, 55th percentile). Parent ratings revealed more than average behavior difficulties related to hyperactivity. He was rated to have

average behaviors related to externalizing problems and internalizing problems. His overall problem behaviors, as rated by the parent, were found to be above average (standard score = 120, 91st percentile).

Loneliness.

On the Loneliness scale (Asher et al., 1984), the target student obtained an overall score of 34 (class mean = 32.22, SD = 13.91, range = 16-62), which falls within one standard deviation of the class mean. A review of item scores indicates that the target student with ASD reported greater difficulties (outside of two standard deviations of the class mean) related to having no one to play with. Some difficulty (outside of one standard deviation of the class mean) was reported in regard to an inability to find a friend when needed, getting other kids to like him, and getting along with others. Relative self-reported strengths, and ratings obtained similar to or more positive than the peers in his class, were noted related to ease in making new friends, has lots of friends, does not feel alone, does not feel left out, and gets along well with others.

Table 21

Loneliness Scale Responses by Item for Classroom Two

Item	Target Student Response	Class *M*	Class *SD*
It's easy for me to make new friends at school.	1	2.11	1.08
I have nobody to talk to.	3	1.83	1.25
I'm good at working with other children.	3	2.00	1.23
It's hard for me to make friends.	1	2.18	1.59
I have lots of friends.	1	1.50	0.86
I feel alone	1	1.94	1.35
I can find a friend when I need one.	4	2.22	1.44
It's hard to get other kids to like me.	4	2.44	1.34
I don't have anyone to play with.	4	1.61	1.09
I get along with other kids.	3	1.56	0.71
I feel left out of things.	1	2.61	1.58
There's nobody I can go to when I need help.	2	1.78	1.17
I don't get along with other children.	1	2.00	1.14
I'm lonely.	1	2.11	1.71
I am well-liked by the kids in my class.	3	2.33	1.24
I don't have any friends.	1	1.17	0.52
Total	**34**	**32.22**	**13.91**

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which positive items were reverse scored and higher ratings indicate higher levels of loneliness.

Figure 17. Distribution of Loneliness Scale total scores for classroom two. The total score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of loneliness.

Qualities of Friendship.

Within classroom two, 13 students identified a student from within the classroom as their best friend while five students identified a student not within the classroom as their best friend. The target student with ASD selected a male peer within the classroom whom he had indicated was his "best friend" on the Friendship Survey. This student had also selected the target student as his "best friend" on the friendship survey.

Within the subscale of companionship, the target student with ASD reported an overall score slightly more positive than the class mean. He indicated that his best friend thought of fun things for them to do together, they made small talk when together, and spent time together.

Table 22

Friendship Qualities Companionship Subscale Responses by Item for Classroom Two

Subscale Item	Target Student Response	Class *M*	Class *SD*
Companionship	**4.5**	**3.53**	**0.82**
My friend and I spend all of our free time together.	4	4.06	0.87
My friend thinks of fun things for us to do together.	5	4.00	1.14
My friend and I go to each other's houses after school and on weekends.	5	2.33	1.61
Sometimes my friend and I just sit around and talk about things like school, sports, and things we like.	4	3.72	1.45

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which higher ratings indicate higher levels of companionship.

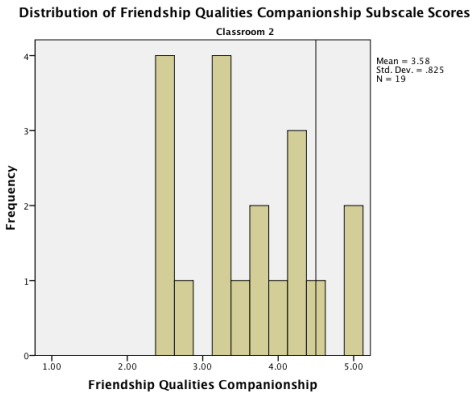

Figure 18. Distribution of Friendship Qualities companionship subscale scores for classroom two. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of companionship.

Within the subscale of conflict, the target student with ASD reported slightly less conflict than the class mean. He indicated that his best friend did not annoy him and that they did not get into fights.

Table 23

Friendship Qualities Conflict Subscale Responses by Item for Classroom Two

Subscale Item	Target Student Response	Class *M*	Class *SD*
Conflict	**1**	**1.89**	**0.88**
I can get into fights with my friend.	1	2.22	1.17
My friend can bug me or annoy me even though I ask him not to.	1	1.61	0.98
My friend and I can argue a lot.	1	1.72	1.07
My friend and I disagree about many things.	1	2.00	1.14

Note. Items were scored on a Likert scale from 1 ‘never true’ to 5 ‘always true’ in which lower ratings indicate lower levels of conflict.

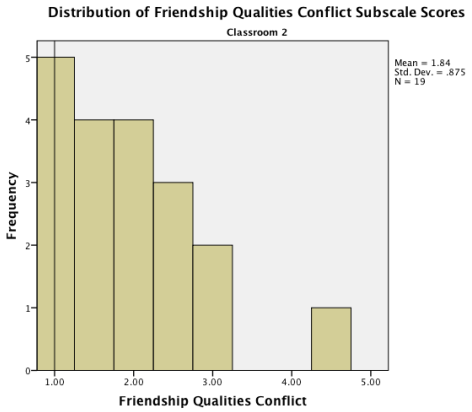

Figure 19. Distribution of Friendship Qualities conflict subscale scores for classroom two. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of companionship.

Within the subscale of help, the target student with ASD reported an overall score slightly more positive than the class mean. He indicated that his best friend would stick up for him if another kid was bothering him and would help him if he was having trouble with something or needed help. He reported that his best friend would not loan him money if he needed it.

Table 24

Friendship Qualities Help Subscale Responses by Item for Classroom Two

Subscale Item	Target Student Response	Class *M*	Class *SD*
Help	**3.8**	**3.76**	**0.95**
If I forgot my lunch or needed a little money, my friend would loan it to me.	1	2.72	1.45
My friend helps me when I am having trouble with something.	5	4.00	1.33
My friend would help me if I needed it.	5	4.17	1.25
If other kids were bothering me, my friend would help me.	5	4.35	0.86
My friend would stick up for me if another kid was causing me trouble.	3	3.56	1.58

Note. Items were scored on a Likert scale from 1 ‘never true’ to 5 ‘always true’ in which higher ratings indicate higher levels of help.

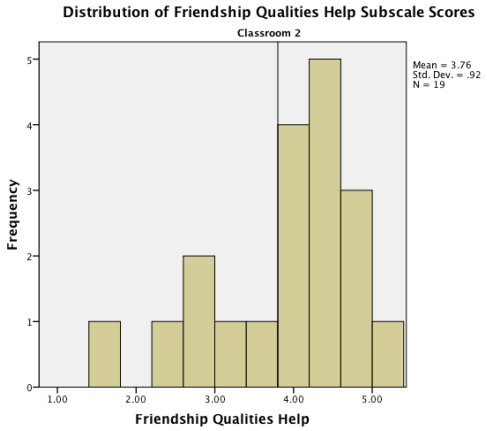

Figure 20. Distribution of Friendship Qualities help subscale scores for classroom two. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of help.

Within the subscale of security, the target student with ASD reported an overall score slightly lower than the class mean. He indicated that he and his friend made up easily if they had an argument or did something that bothered the other. Slightly lower scores were reported for talking to his friend about a problem or something that was bothering him.

Table 25

Friendship Qualities Security Subscale Responses by Item for Classroom Two

Subscale Item	Target Student Response	Class *M*	Class *SD*
Security	**3.8**	**3.99**	**0.87**
If I have a problem at school or at home, I can talk to my friend about it.	3	3.22	1.73
If there is something bothering me, I can tell my friend about it even if it is something I cannot tell other people.	3	3.89	1.53
If I said I was sorry after I had a fight with my friend, he would still stay mad at me.	5	4.56	0.78
If my friend and I do something that bothers the other one of us, we can make up easily.	5	4.17	1.25
If my friend and I have a fight or argument, we can say 'I'm sorry' and everything will be alright.	4	4.11	1.37

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which higher ratings indicate higher levels of security.

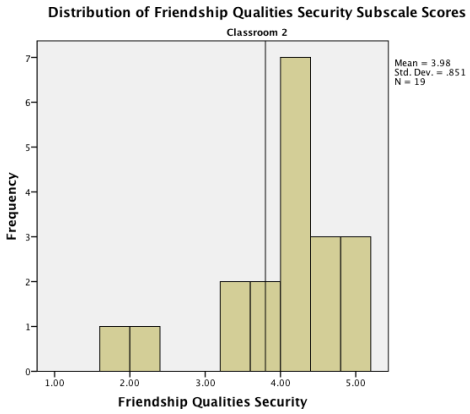

Figure 21. Distribution of Friendship Qualities security subscale scores for classroom two. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of security.

Within the subscale of closeness, the target student with ASD reported an overall score slightly more positive than the class mean. He indicated that if his best friend had to move away he would miss him, he was happy when he is around was friend, he thought about his friend even when they were not together, his friend was happy for him when he did a good job at something, and his friend did things for him that made him feel special.

Table 26

Friendship Qualities Closeness Subscale Responses by Item for Classroom Two

Subscale Item	Target Student Response	Class *M*	Class *SD*
Closeness	**5**	**4.51**	**0.62**
If my friend had to move away, I would miss him.	5		
I feel happy when I am with my friend.	5	4.89	0.32
I think about my friend even when my friend is not around.	5	4.28	1.18
When I do a good job at something, my friend is happy for me.	5	4.06	1.11
Sometimes my friend does things for me, or makes me feel special.	5	4.33	1.09

Note. Items were scored on a Likert scale from 1 ‘never true’ to 5 ‘always true’ in which higher ratings indicate higher levels of closeness.

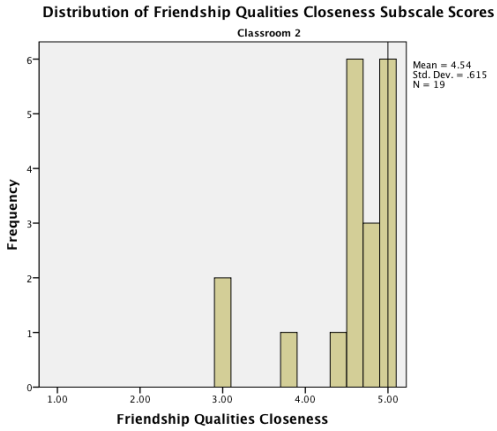

Figure 22. Distribution of Friendship Qualities closeness subscale scores for classroom two. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of closeness.

Attitudes toward children with disabilities.

Within classroom two, students reported an overall mean of 30.03 (SD – 5.87) in the area of affective, indicating moderately positive attitudes in this area. A review of items indicated that as a class, students reported being worried if a child with a disability sat next to them, feeling sorry for children with disabilities, not being happy to be invited to the house of a child with a disability, and not enjoying being with a child with a disability. More positive ratings were found related to not being afraid of a child with a disability, living next door to a child with a disability, being happy having a child with a disability as a special friend, liking a child with a disability as much as their other friends, feeling good doing a school project with a child with a disability, not being scared being near someone with a disability, not being embarrassed being invited to the birthday party of a child with a disability, and not being upset when they see a child with a disability. The target student with ASD reported an overall score within two standard deviations of the class mean, indicating more negative affective attitudes than the class average. Positive ratings were reported regarding liking a child with a disability as much as his

other friends, feeling good doing a school project with a child with a disability, enjoying being with a child with a disability, and not feeling upset when he sees a child with a disability.

Table 27

CATCH Affective Subscale Responses by Item for Classroom Two

Subscale Item	Target Student Response	Class *M*	*SD*
Affective Total	**22.5**	**30.03**	**5.87**
I feel sorry for children with disabilities.	2	1.72	1.07
I would be afraid of a child with a disability.	2	3.50	0.86
I would like having a child with a disability live next door to me.	2	3.33	0.84
I would be happy to have a child with a disability as a special friend.	2	3.22	0.88
I would not like a friend with a disability as much as my other friends.	4	3.33	1.09
I would be pleased if a child with a disability invited me to his house.	1	2.94	1.06
I would feel good doing a school project with a child with a disability.	3	3.53	0.87
Being near someone who has a disability scares me.	2	3.22	1.06
I would be embarrassed if a child with a disability invited me to his birthday party.	2	3.28	1.07
I would enjoy being with a child with a disability.	3	2.94	1.16
I feel upset when I see a child with a disability.	4	2.50	1.25

Note. Items were scored on a Likert scale from 1 ‘definitely disagree’ to 4 ‘definitely agree’ in which higher ratings indicate more positive affective attitudes.

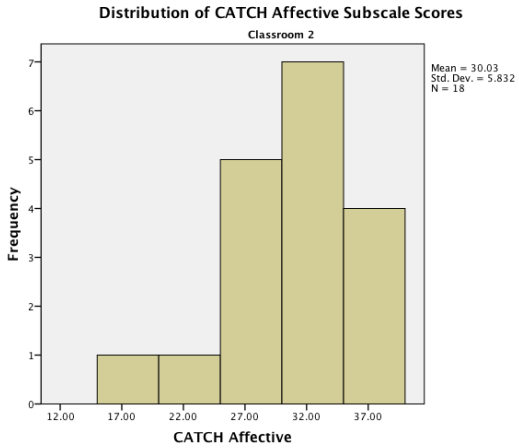

Figure 23. Distribution of CATCH affective subscale scores for classroom two. The subscale score for the student with ASD is not included. Higher scores indicate more positive affective attitudes.

Students reported an overall mean of 31.06 (SD – 6.34) in the area of behavioural, indicating moderately positive attitudes in this area. A review of items indicated that as a class, students reported not knowing what to say to a child with a disability, trying not to look at a child with a disability, not inviting a child with a disability to sleep over at their house, and not telling secrets to a child with a disability. More positive ratings were found related to introducing a child with a disability to their friends, sticking up for a child with a disability who was being teased, inviting a child with a disability to their birthday party, talking to a child with a disability they didn't know, not staying away from a child with a disability, sitting next to a child with a disability, going to the house of a child with a disability to play, and missing recess to keep a child with a disability company. The target student with ASD reported an overall score within one standard deviation of the class mean in regard to his behavioural attitudes toward children with disabilities. He indicated that he would not stick up for a child with a disability who was being teased, not invite a child with a disability to his birthday party, try to stay away from a child with a disability, try not to sit next to a child with a disability, not invite a

child with a disability to sleep over at his house, and not tell his secrets to a child with a disability.

Table 28

CATCH Behavioural Subscale Responses by Item for Classroom Two

Subscale Item	Target Student Response	Class *M*	Class *SD*
Behavioural Total	**25.83**	**31.06**	**6.34**
I would not know what to say to a child with a disability.	3	2.89	1.08
I would stick up for a child with a disability who was being teased.	2	3.72	0.58
I would invite a child with a disability to my birthday party.	1	3.29	1.05
I would talk to a child with a disability I didn't know.	4	3.17	1.04
I would try to stay away from a child with a disability.	2	3.53	0.87
In class I wouldn't sit next to a child with a disability.	2	3.28	1.02
I try not to look at someone who has a disability.	4	2.94	1.11
I would invite a child with a disability to sleep over at my house.	1	2.61	1.24
I would tell my secrets to a child with a disability.	2	2.33	1.14
I would not go to the house of a child with a disability to play.	3	3.00	1.19
I would miss recess to keep a child with a disability company.	3	3.06	1.11

Note. Items were scored on a Likert scale from 1 'definitely disagree' to 4 'definitely agree' in which higher ratings indicate more positive behavioural attitudes.

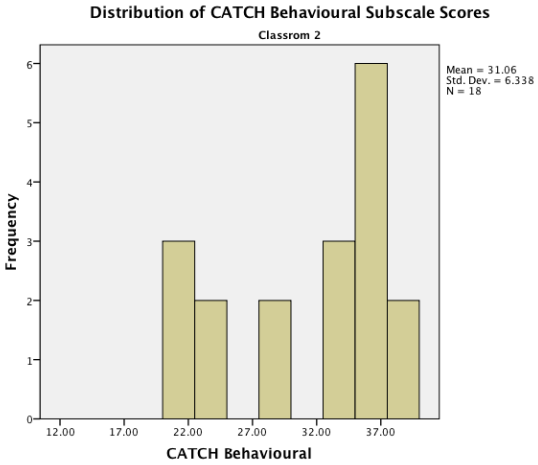

Figure 24. Distribution of CATCH behavioural subscale scores for classroom two. The subscale score for the student with ASD is not included. Higher scores indicate more positive behavioural attitudes.

Students reported an overall mean of 28.72 (SD – 4.32) in the area of cognitive, indicating moderately negative attitudes in this area. A review of items indicated that as a class, students reported that children with disabilities can't do many things for themselves, feel sorry for themselves, aren't as happy, don't know how to behave properly, are not interested in lots of things, are often sad, and need lots of help to do things. More positive ratings were found related to children with disabilities in the items of like to play, don't want a lot of attention from adults, like to make friends, have fun, and can make new friends. The target student with ASD reported a slightly more positive rating than the class mean in regard to his cognitive attitudes toward children with disabilities. He indicated that children with disabilities feel sorry for themselves, are not as happy as he is, are often sad, and needs lots of help to do things.

Table 29

CATCH Cognitive Subscale Responses by Item for Classroom Two

Subscale Item	Target Student Response	Class *M*	*SD*
Cognitive Total	**30.00**	**28.72**	**4.32**
Children with disabilities like to play.	3	3.11	0.76
Children with disabilities want lots of attention from adults.	4	3.00	0.97
Children with disabilities don't like to make friends.	4	3.72	0.46
Children with disabilities feel sorry for themselves.	2	2.53	1.23
Children with disabilities are as happy as I am.	1	2.89	1.08
Children with disabilities know how to behave properly.	4	2.56	0.78
Children with disabilities don't have much fun.	4	3.11	0.90
Children with disabilities are interested in lots of things.	4	2.88	0.99
Children with disabilities are often sad.	2	2.39	1.04
Children with disabilities can make new friends.	4	3.56	0.71
Children with disabilities need lots of help to do things.	1	2.00	0.91

Note. Items were scored on a Likert scale from 1 'definitely disagree' to 4 'definitely agree' in which higher ratings indicate more positive cognitive attitudes.

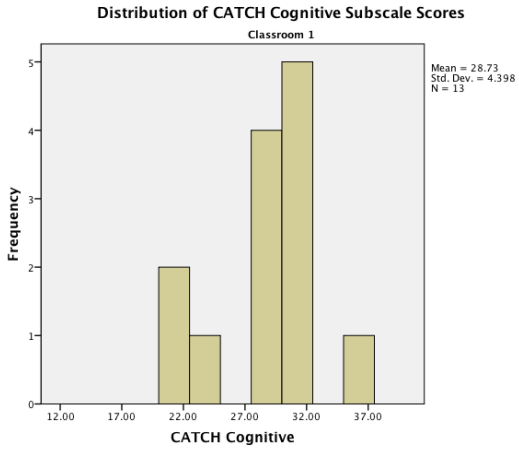

Figure 25. Distribution of CATCH cognitive subscale scores for classroom two. The subscale score for the student with ASD is not included. Higher scores indicate more positive cognitive attitudes.

General education teacher factors.

The general education teacher for classroom two was a 39-year-old Caucasian female. She had 18 years teaching experience, previous experience teaching students with ASD, and her highest degree obtained was a Master's.

With regard to autism knowledge, the classroom teacher responded correctly to 12 out of the 15 items, with a percent correct score of 92%. She responded ‘Don’t Know’ to two of the items and responded incorrectly to one item.

Table 30

Teacher Responses on AIQ Knowledge for Classroom Two

Correct (n = 12)	Incorrect (n = 1)	Don't Know (n = 2)
The diagnostic criteria for Asperger's Syndrome are identical to High Functioning Autism.	The core deficits in ASDs are impaired social understanding, language abnormalities, and impaired sensory functioning.	Genetic factors play an important role in the causes of ASDs.
ASDs are developmental disorders.		Traumatic experience very easily in life can cause an ASD.
ASDs exist only in childhood.		
Behavior therapy is an intervention likely to be effective for children with ASDs.		
Children with ASDs are very similar to one another.		
Early intervention demonstrates no additional benefit to children with an ASD.		
If an intervention works for one child with an ASD, it will definitely work for another child with an ASD.		
Medication can alleviate the core symptoms of ASDs.		
Most children with ASDs have cognitive abilities in the intellectually disabled range.		
Most children with ASDs have special talents or abilities.		
In many cases, the cause of ASDs is unknown.		

With proper intervention, most children with an ASD will eventually "outgrow" the disorder.	

Note. Teacher participant responded 'true,' 'false,' or 'don't know' to each item.

The general education teacher from classroom two obtained a total attitude score of 17, indicating positive attitudes towards the inclusion of students with ASD.

Furthermore, eleven of the items assess teacher attitude towards possible factors that may contribute to successful inclusion of students with ASD. The teacher indicated that the help of a paraprofessional, the academic ability of the student, the severity of the disability, the attitude of staff, and encouraging students with an ASD to interact with typically developing peers are important factors that contribute to successful inclusion. Factors that were reported to not be important for the successful inclusion included the personality of the student, medication and drug therapy, only teachers with extensive special education experience, and the role of special schools. More neutral responses were reported with regard to one-on-one intervention and the use of a reinforcement schedule.

A total score of 79 was obtained for 'Classroom Behaviors' by adding the score of each the 20 items. Specific ratings are provided in the table below. The target student in classroom two was reported, based on teacher ratings on the SSRS problem behaviors, to very often fidget or move excessively (slightly disruptive). He was reported to sometimes show anxiety about being with a group of children (slightly disruptive) and not listen to what others say (not at all disruptive).

Table 31

Teacher Ratings on AIQ Classroom Behaviors for Classroom Two

Highly Disruptive	**Disruptive**	**Somewhat Disruptive**	**Slightly Disruptive**	**Not at all Disruptive**
Aggression		Screaming/crying/ tantruming	Aloofness	Difficulty in reciprocal conversation
Non-compliance		Sensitivity to sounds.	Fear of harmless objects	Eye contact avoidance
			High levels of activity	Preoccupation with one thing
			Inappropriate emotionality	Preoccupation with touching/ smelling/ tasting
			Lack of peer relations	Problems with non-verbal behavior
			Off-task behavior	Repetitive/ bizarre/ echolalic speech
			Poor peer relations	Strange or unusual body movements
			Resistance and negative reaction to changes in the schedule	
			Rudeness in making requests	

Note. Each behavior was rated on a Likert scale from 'highly disruptive' to 'not at all disruptive.'

A total awareness score on 'Classroom Practices' of 18 was obtained and a total use score of 0 was obtained. This indicates that although the teacher reported awareness of a relatively high number of classroom strategies, the ones she reported using were not found to be evidence-based.

In addition to the evidence-based practices, additional items were included related to peer/social skills, classroom modifications, instructional techniques, and behavior management strategies.

Table 32

Teacher Ratings on AIQ Use of Strategies for Classroom Two

Currently Using	Use in the past	Never used
Peer tutoring strategies$_1$	Direct instruction of social skills$_1$	Educating peers about ASD$_1$
Preferential seating$_2$	Behavior contract$_4$	Peer initiation strategies$_1$
Providing students a 'home base'$_2$	Choice making$_4$	Priming$_3$
Providing a list of schedule changes$_2$	Token economies$_4$	Edible reinforcement$_4$
Extra time on assignments$_3$		Functional Behavior Assessment$_4$
Providing a list of classroom expectations$_2$		
Visual activity schedules$_3$		
Prompting$_3$		
Verbal reinforcement$_4$		

Note. The teacher responded to each item 'currently using,' 'used in the past,' or 'never used.' 1 = peer/social skills; 2 = classroom modifications; 3 = instructional techniques; 4 = behavior management strategies.

Strategies that were rated as 'very effective' included peer tutoring, prompting, providing a student 'home base,' providing a list of schedule changes, providing a list of teacher expectations, and verbal reinforcement. Strategies rated as 'effective' included choice making, direct instruction of social skills, extra time to complete assignments, preferential seating, and visual activity schedules. Strategies rated as 'somewhat effective' included behavior contract and token economies. None of the strategies were rated as 'not effective.'

Classroom 3

Target student three was an 11-year-old male in the fifth grade. He had a diagnosis of Autism Spectrum Disorder. He did not have any secondary diagnoses. He had received special education services under the eligibility category of Autism for two months. His cognitive abilities were average (teacher report on the Social Skills Rating System: 92, 30th percentile). According to his most recent Individualized Education Program, target student three had four objectives that target social communication skills (give advice to peers, participate/interact in structured social situations, ask others to change their actions, offer affection or appreciation), two objectives targeting responding appropriate to adults (respond appropriately to adults with arguing and respond appropriately to adults without rolling his eyes), and three objectives targeting vocational skills (completing a task, maintaining focus, and checking his work before putting his head down or starting another assignment). He received 45 minutes a day in the resource classroom to address social/vocational skills.

Within classroom three, 14 students (3 male, 11 female) including the target student participated in the study. Aggregated data were collected on a total of 26 students in the classroom (12 male, 14 female). Two students in the classroom, including the target student, had a current IEP.

Social Inclusion.

Indegrees.

Within classroom three, students were found to be identified, on average, 3.33 times (N = 27, SD: 1.98, range 1-8 nominations) as someone whom others like to "hang out with." The target student with ASD did not receive any nominations.

Outdegrees.

Within classroom three, students were found to identify, on average, 6.77 students (SD: 2.24; range 4-12) as someone whom they like to "hang out with." The target student did not list any students as someone whom he liked to hang out with, top three, or best friend. While other students took time to complete this measure, the target student raised his hand and asked, "what if there isn't anyone." He was encouraged to list the names of any students in the class whom he likes to spend time with, but was told he did not have to provide names if he did not feel as though it was an appropriate or honest response. He was asked at this time if he would prefer to not participate in the study to which he indicated he would like to continue participating.

Table 33

Indegrees and Outdegrees Values for Classroom Three

	Student with ASD	Class		
		M	*SD*	Range
Indegrees (N = 26)	0	3.33	1.98	2-8
Oudegrees (N = 14)	0	6.77	2.24	4-12

Note. Indegrees refers to the total number of friendship nominations received for each individual student (i.e., the number of peers who indicated the student as "someone they like to hang out with"). Outdegrees refers to the total number of friendship nominations made by a particular student (i.e., the number of peers who the student indicated as "someone they like to hang out with").

Reciprocal top three friendship nomination.

Forty-three percent (n = 6) of participating students were found to have 100% reciprocity of the friends nominated within their top three list, who also participated in the study. Approximately seven percent (n = 1) of participating students were found to have 50% reciprocity and approximately seven percent (n = 1) were found to have 33% reciprocity. Forty-three percent of participating students (n = 6) were found to have 0%

reciprocity. The target student with ASD did not list any students as someone whom he liked to hang out with, top three, of best friend. Therefore, he was not determined to have a top three reciprocal nomination. No missing data were recorded for this variable within class one indicating that all participating students selected at least one other participating student as part of their top-three list nomination.

Best friend reciprocal:

Thirty-six percent (n = 5) participating students were found to have a reciprocated nominated best friend. Twenty-nine percent (n = 4) were found to not have a reciprocated nominated best friend. The target student with ASD did not list any student as someone whom he liked to hang out with, top three, of best friend. Therefore, he was not determined to have a reciprocal best friend nomination. Thirty-six percent (n = 5) of participating students nominated a student who did not participate in the study as their best friend; therefore, this variable was recorded as missing data for those particular students.

Social network variables.

Individual centrality.

For classroom three, five students were found to have low individual centrality, 12 students were found to have medium individual centrality, and nine students were found to have high individual centrality. The target student with ASD was found to have low individual centrality. He received a nomination as belonging to a group twice (class mean = 11, SD = 4.79, range = 1-18), indicating that 14% of his classmates participating in the study listed him as being part of a group. However, the target student with ASD was listed as being in a group by himself (with no other peers) three times (by 21% of

participating classmates). When the students were asked to list all of the kids in the class who like to hang out together (i.e., list the different clusters within the class), the target student with ASD wrote “every boy except me” and “every girl.”

When initially computing the probability similarity index for students in the class, the target student with ASD was found to have a probability greater than .40 with one other student, indicating that they belonged to the same social cluster. However, the other student was only nominated as belonging to a group one time, and this group also contained a nomination for the student with ASD. Because neither student was nominated to a group on more than two occasions, and once were nominated as belonging to the same group, the PSI value came out above .40. However, when adding in a variable that compared the existing group nominations while factoring in the number of times a student was identified as belonging to a group by themselves, the PSI value was no longer greater than .40, indicating that the student with ASD has a value more similar to belonging in a group by himself than with a peer who was only nominated as belonging to a group once.

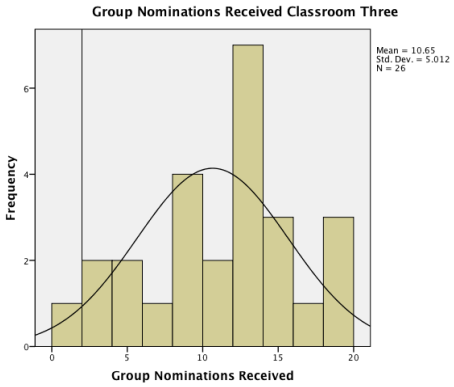

Figure 26. Distribution of nominations received belonging to a social group classroom three. The number of times the student with ASD was nominated to a group is marked by the vertical black line from the x-axis.

Cluster centrality.

For classroom three, two clusters were found to have medium centrality and three clusters were found to have high cluster centrality. The student with ASD, and one other male peer, were each found to be isolated, indicating that they had no connections within the classroom to other peers.

Social network centrality.

Within classroom three, three students were found to be peripheral, 12 students were found to be secondary, and nine students were found to be nuclear. The target student, and one other male peer, were both found to be isolated.

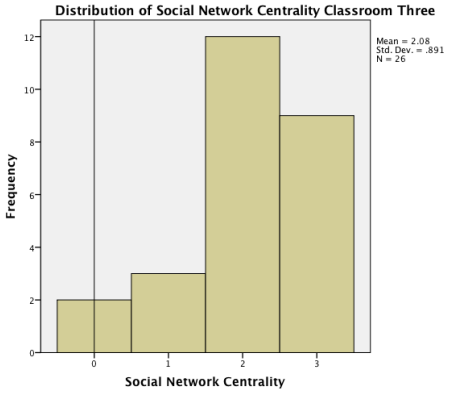

Figure 27. Distribution of social network centrality findings for classroom three. The social network centrality value for the student with ASD is marked by the vertical black line from the x-axis. 0 = Isolated; 1 = Peripheral; 2 = Security; 3 = Nuclear.

Table 34

Social Network Variable Findings for Classroom Three

Student	Gender	Individual Centrality	Cluster Centrality	Social Network Centrality
1	F	High	High	Nuclear
2	**M**	**Low**	**None**	**Isolated**
3	F	Medium	High	Secondary
4	F	Medium	High	Secondary
5	F	High	High	Nuclear
6	F	Medium	High	Secondary
7	F	High	High	Nuclear
8	M	High	High	Nuclear
9	F	Medium	High	Secondary
10	F	High	High	Nuclear
11	F	Low	High	Peripheral
12	F	High	High	Nuclear
13	F	Medium	High	Secondary
14	M	High	High	Nuclear
15	M	Medium	High	Secondary
16	M	Medium	Medium	Secondary
17	M	Medium	Medium	Secondary
18	F	Medium	High	Secondary
19	F	Low	High	Peripheral
20	F	High	High	Nuclear
21	M	High	High	Nuclear
22	M	Medium	High	Secondary
23	M	Medium	Medium	Secondary
24	M	Medium	High	Secondary
25	M	Low	Medium	Peripheral
26	M	Low	None	Isolated

Note. Individual centrality refers to how well each student fits in within the social network of the classroom based on the number of times he or she was identified as belonging to any group. Cluster centrality refers to the prominence of each cluster within the social structure of the classroom. Social network centrality is determined by examining the individual and cluster centrality identifications for each student. The social network centrality findings for the target student with ASD is bolded.

CLASSROOM 3 CLUSTERS

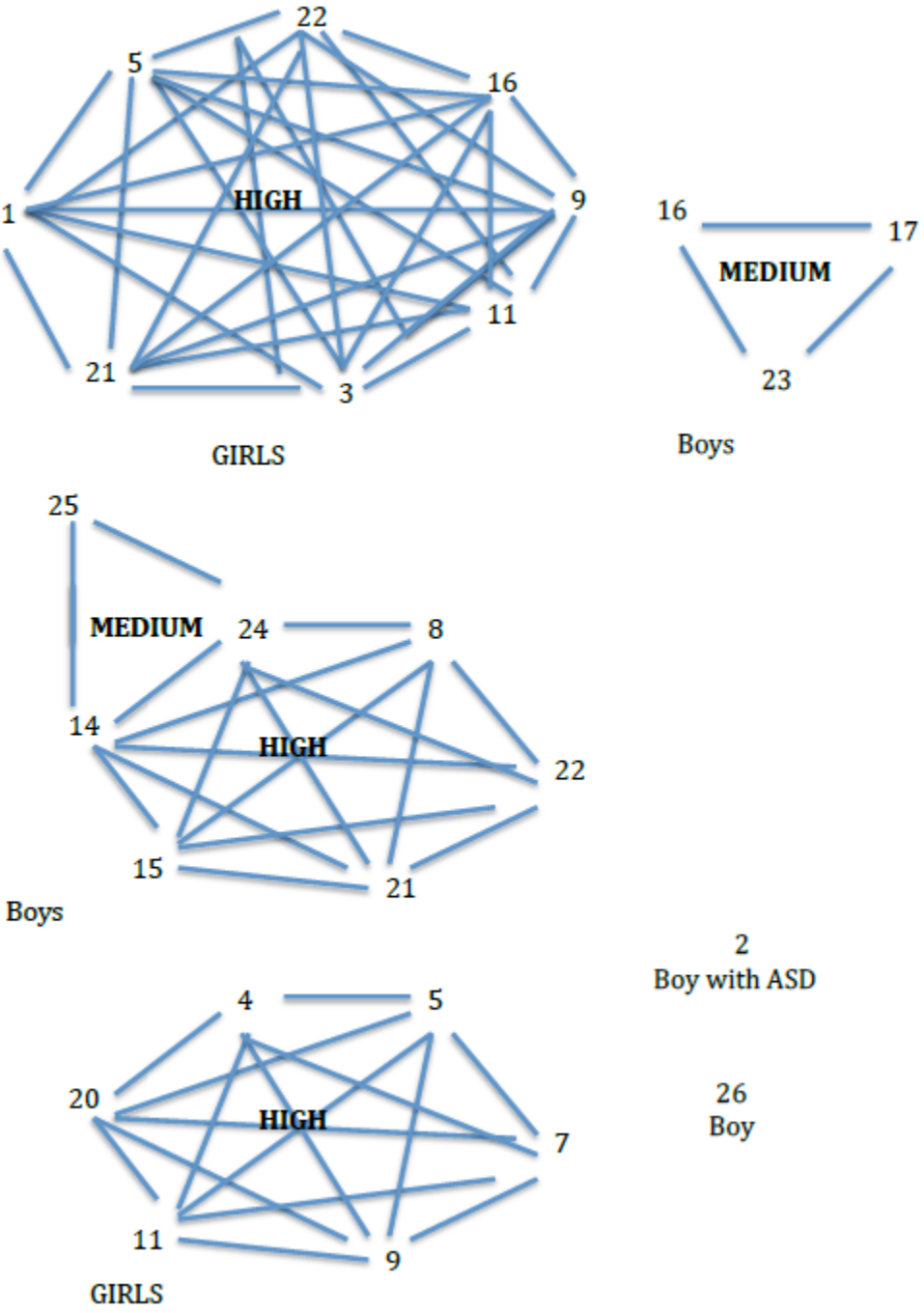

Figure 28. Social network map of Classroom Three. The student with ASD is student number 2.

Social skills.

Differences were again found between parent and teacher reports in that the parent ratings were found to be lower and indicated more deficits related to social skills and problem behaviors. As rated by the teacher, the target student with ASD was found to have average social skills as it relates to cooperation and self-control. He was found to have below average skills as it relates to assertion. Particular difficulties as it relates to assertion included introducing himself to new people without being told, inviting others to join in activities, making friends easily, initiating conversations with peers, appropriately telling you when he thinks you have treated him unfairly, giving compliments to peers, volunteering to help peers with classroom tasks, and joining an ongoing activity or group without being told to do so. The target student received a score of "0" on each of these items, indicating that he never demonstrates skills in these areas. He received a score of "1", indicating that he sometimes demonstrates skills in the following areas: appropriately questions rules that may be unfair and says nice things about himself when appropriate. His overall social skills, as rated by the teacher, were found to be below average (standard score = 80, 9^{th} percentile).

Parent ratings revealed below average skills in the areas of assertion, responsibility, and self-control. His skills in the area of cooperation were rated as average. His overall social skills, as rated by the parent, were found to be below average (standard score = 75, 5^{th} percentile).

In the area of problem behaviors, teacher ratings indicated that the target student with ASD had average behaviors related to externalizing problems, internalizing problems, and hyperactivity. His overall problem behaviors, as rated by the teacher, were

found to be above average (standard score = 104, 61st percentile). Parent ratings revealed more than average behavior difficulties related to hyperactivity. He was rated to have average behaviors related to externalizing problems and internalizing problems. His overall problem behaviors, as rated by the parent, were found to be above average (standard score = 122, 93rd percentile).

Loneliness.

On the Loneliness scale (Asher et al., 1984), the target student obtained an overall score of 75 (class mean = 32.92, SD = 13.87, range = 17-60), which falls three standard deviations outside of the class mean. A review of item scores indicated that the target student with ASD reported greater difficulties (outside of two standard deviations of the class mean) related to having no one to talk to, difficulty with working with others, having a limited number of friends, difficulty getting others to like him, having no one to play with, difficulty getting along with others, and overall feelings of loneliness. Some difficulty (outside of one standard deviation of the class mean) was reported with regard to making new friends at school, feeling alone, ability to find a friend when needed, feeling left out, and not being well-liked by his peers. The only item that fell within one standard deviation of the mean, and was actually found to be rated more positively than the class mean, was having someone to go to when he needed help.

Table 35

Loneliness Scale Responses by Item for Classroom Three

Item	Target Student Response	Class	
		M	*SD*
It's easy for me to make new friends at school.	5	2.69	1.32
I have nobody to talk to.	5	1.31	0.63
I'm good at working with other children.	3	1.62	0.87
It's hard for me to make friends.	5	2.31	1.65
I have lots of friends.	5	1.85	1.35
I feel alone	5	2.15	1.46
I can find a friend when I need one.	5	2.25	1.49
It's hard to get other kids to like me.	5	2.00	1.41
I don't have anyone to play with.	5	1.54	0.88
I get along with other kids.	5	1.54	1.13
I feel left out of things.	5	2.77	1.42
There's nobody I can go to when I need help.	2	2.23	1.54
I don't get along with other children.	5	1.15	0.56
I'm lonely.	5	1.54	1.33
I am well-liked by the kids in my class.	5	2.46	1.61
I don't have any friends.	5	1.38	0.96
Total	**75**	**32.92**	**13.87**

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which positive items were reverse scored and higher ratings indicate higher levels of loneliness.

Figure 29. Distribution of Loneliness Scale total scores for classroom three. The total score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of loneliness.

Qualities of friendship.

Within classroom three, 10 students identified a student from within the classroom as their best friend, three students identified a student not within the classroom as their best friend, and one student did not list a name of a student even though that student completed the rating scale. The target student with ASD selected a male peer from outside of the classroom. Ratings discussed below indicate that although the target student with ASD did not report having any social connections or friendships within his classroom, as well as high levels of loneliness, he did report having at least one best friend outside of the classroom with a relationship characterized by high levels of companionship and security in addition to low levels of conflict.

Within the subscale of companionship, the target student with ASD reported an overall within one standard deviation of the class mean. He indicated that he spent time with his best friend, spent time at each other's houses, and made small talk. He reported that his best friend did not often think of fun things for them to do together.

Table 36

Friendship Qualities Companionship Subscale Responses by Item for Classroom Three

Subscale Item	Target Student Response	Class *M*	Class *SD*
Companionship	**3**	**3.27**	**1.07**
My friend and I spend all of our free time together.	3	3.69	1.18
My friend thinks of fun things for us to do together.	2	3.77	1.17
My friend and I go to each other's houses after school and on weekends.	4	2.31	1.75
Sometimes my friend and I just sit around and talk about things like school, sports, and things we like.	3	3.31	1.55

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which higher ratings indicate higher levels of companionship.

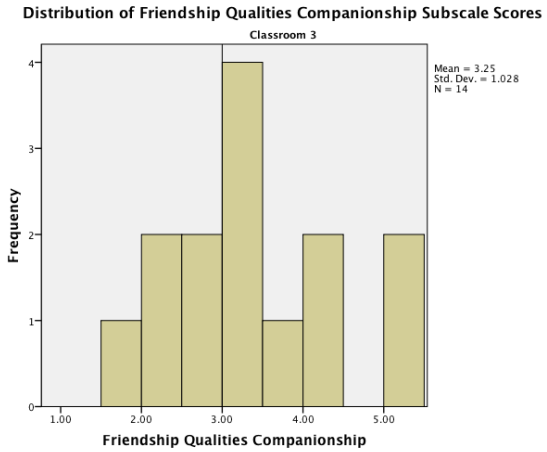

Figure 30. Distribution of Friendship Qualities companionship subscale scores for classroom three. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of companionship.

Within the subscale of conflict, the target student with ASD reported slightly less conflict than the class mean. He indicated that he and his best friend rarely got into arguments or annoyed one another even when asked not to.

Table 37

Friendship Qualities Conflict Subscale Responses by Item for Classroom Three

Subscale Item	Target Student Response	Class *M*	Class *SD*
Conflict	**1.75**	**2.02**	**0.87**
I can get into fights with my friend.	2	2.38	1.12
My friend can bug me or annoy me even though I ask him not to.	2	1.92	1.50
My friend and I can argue a lot.	1	1.92	1.19
My friend and I disagree about many things.	2	1.85	1.21

Note. Items were scored on a Likert scale from 1 ‘never true’ to 5 ‘always true’ in which lower ratings indicate lower levels of companionship.

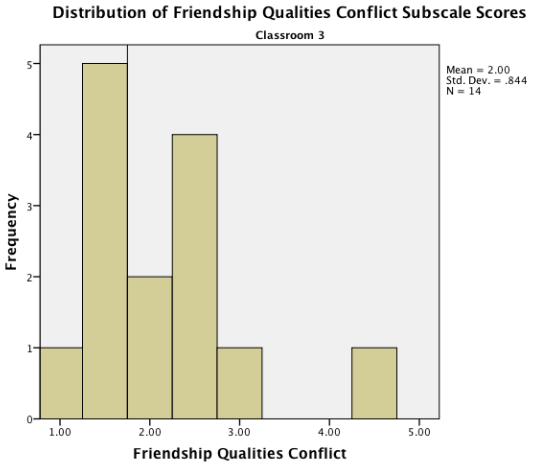

Figure 31. Distribution of Friendship Qualities conflict subscale scores for classroom three. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Lower scores indicate lower levels of conflict.

Within the subscale of help, the target student with ASD reported an overall score within two standard deviations of the class mean. He indicated that his best friend helped him when he was having trouble with something or if other kids were bothering him. He reported that his best friend would not loan him money if he needed it and would not stick up for him if another kid was causing him trouble.

Table 38

Friendship Qualities Help Subscale Responses by Item for Classroom Three

Subscale Item	Target Student Response	Class *M*	Class *SD*
Help	**2**	**3.95**	**1.11**
If I forgot my lunch or needed a little money, my friend would loan it to me.	1	3.08	1.80
My friend helps me when I am having trouble with something.	3	4.15	1.21
My friend would help me if I needed it.	2	4.77	0.60
If other kids were bothering me, my friend would help me.	3	3.85	1.57
My friend would stick up for me if another kid was causing me trouble.	1	3.92	1.71

Note. Items were scored on a Likert scale from 1 ‘never true’ to 5 ‘always true’ in which higher ratings indicate higher levels of help.

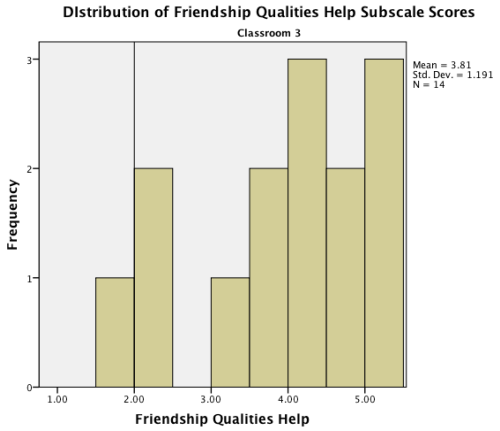

Figure 32. Distribution of Friendship Qualities help subscale scores for classroom three. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of help.

Within the subscale of security, the target student with ASD reported an overall score within one standard deviation of the class mean. He indicated that he and his best friend could make up easily after an argument. He reported that he didn't talk to his friend about problems or something that was bothering him.

Table 39

Friendship Qualities Security Subscale Responses by Item for Classroom Three

Subscale Item	Target Student Response	Class *M*	Class *SD*
Security	**3.4**	**4.14**	**0.90**
If I have a problem at school or at home, I can talk to my friend about it.	1	3.62	1.66
If there is something bothering me, I can tell my friend about it even if it is something I cannot tell other people.	1	4.08	1.61
If I said I was sorry after I had a fight with my friend, he would still stay mad at me.	5	4.23	1.24
If my friend and I do something that bothers the other one of us, we can make up easily.	5	4.38	0.77
If my friend and I have a fight or argument, we can say 'I'm sorry' and everything will be alright.	5	4.38	0.77

Note. Items were scored on a Likert scale from 1 'never true' to 5 'always true' in which higher ratings indicate higher levels of security.

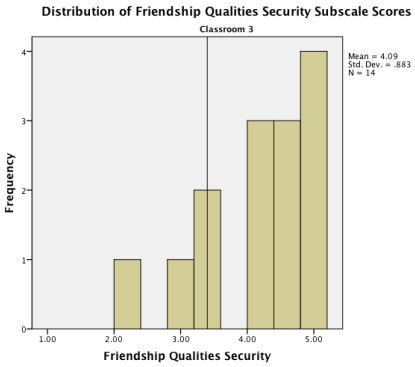

Figure 33. Distribution of Friendship Qualities Security subscale scores for classroom three. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of security.

Within the subscale of closeness, the target student with ASD reported an overall score within two standard deviations of the class mean. He indicated that he would miss his friend if he moved away, he felt happy when with his friend, thought about his friend when he was not around, and his friend did things that made him feel special. He reported that when he did a good job, his friend was not generally happy for him.

Table 40

Friendship Qualities Closeness Subscale Responses by Item for Classroom Three

Subscale Item	Target Student Response	Class *M*	Class *SD*
Closeness	**3.8**	**4.52**	**0.49**
If my friend had to move away, I would miss him.	4		
I feel happy when I am with my friend.	4	4.92	1.18
I think about my friend even when my friend is not around.	5	4.08	0.95
When I do a good job at something, my friend is happy for me.	2	4.38	1.04
Sometimes my friend does things for me, or makes me feel special.	4	4.23	1.17

Note. Items were scored on a Likert scale from 1 ‘never true’ to 5 ‘always true’ in which higher ratings indicate higher levels of closeness.

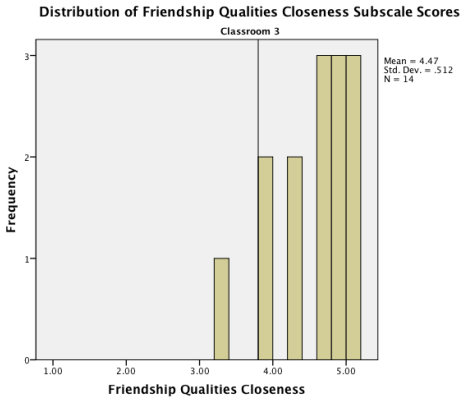

Figure 34. Distribution of Friendship Qualities closeness subscale scores for classroom three. The subscale score for the student with ASD is marked by the vertical black line from the x-axis. Higher scores indicate higher levels of closeness.

Attitudes toward children with disabilities.

Within classroom three, students reported an overall mean on the CATCH (Rosenbaum et al., 1986) of 32.24 (SD – 5.21) in the area of affective, indicating moderately positive attitudes in this area. A review of items indicated that as a class, students reported feeling sorry for children with disabilities and feeling upset when they see a child with a disability. More positive ratings were found related to not worrying if a child with a disability sat next to them in class, not being afraid of a child with a disability, enjoying living next door to a child with a disability, being happy having a child with a disability as a special friend, liking a child with a disability as much as their other friends, feeling pleased to be invited to the house of a child with a disability, feeling good doing a school project with a child with a disability, not being scared being near someone with a disability, not being embarrassed being invited to the birthday party of a child with a disability, and enjoying being with a child with a disability. The target student with ASD reported an overall score slightly more positive than the class mean. He reported not liking a child with a disability as much as his friends.

Table 41

Distribution of CATCH Affective Subscale Scores for Classroom Three

Subscale Item	Target Student Response	Class *M*	Class *SD*
Affective Total	**35.8**	**32.24**	**5.21**
I feel sorry for children with disabilities.	4	1.31	0.86
I would be afraid of a child with a disability.	4	3.92	0.28
I would like having a child with a disability live next door to me.	3	3.08	0.90
I would be happy to have a child with a disability as a special friend.	3	3.42	1.0
I would not like a friend with a disability as much as my other friends.	2	3.67	0.65
I would be pleased if a child with a disability invited me to his house.	4	3.33	1.16
I would feel good doing a school project with a child with a disability.	3	3.58	0.90
Being near someone who has a disability scares me.	4	3.50	1.0
I would be embarrassed if a child with a disability invited me to his birthday party.	4	3.75	0.62
I would enjoy being with a child with a disability.	4	3.42	0.34
I feel upset when I see a child with a disability.	3	2.33	1.16

Note. Items were scored on a Likert scale from 1 'definitely disagree' to 4 'definitely agree' in which higher ratings indicate more positive affective attitudes.

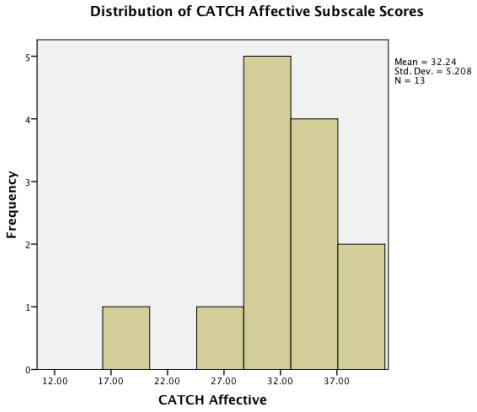

Figure 35. Distribution of CATCH Affective subscale scores for classroom three. The subscale score for the student with ASD is not included. Higher scores indicate more positive affective attitudes.

Within classroom three, students reported an overall mean of 35.64 (SD – 4.53) in the area of behavioural, indicating moderately positive attitudes in this area. A review of

items indicated that as a class, students reported generally positive attitudes towards all items within this subscale including not being worried if a child with a disability sat next to them, not feeling sorry for children with disabilities, being happy to be invited to the house of a child with a disability, enjoying being with a child with a disability. not being afraid of a child with a disability, living next door to a child with a disability, being happy having a child with a disability as a special friend, liking a child with a disability as much as their other friends, feeling good doing a school project with a child with a disability, not being scared being near someone with a disability, not being embarrassed being invited to the birthday party of a child with a disability, and not being upset when they see a child with a disability. The target student with ASD reported an overall score generally consistent with the class mean. He also reported overall positive ratings on all items within this subscale.

Table 42

Distribution of CATCH Behavioural Subscale Scores for Classroom Three

Subscale Item	Target Student Response	Class *M*	Class *SD*
Behavioural Total	**35.83**	**35.64**	**4.53**
I would not know what to say to a child with a disability.	4	3.23	1.01
I would stick up for a child with a disability who was being teased.	4	3.92	0.28
I would invite a child with a disability to my birthday party.	4	3.38	1.12
I would talk to a child with a disability I didn't know.	3	3.62	0.87
I would try to stay away from a child with a disability.	4	3.75	0.62
In class I wouldn't sit next to a child with a disability.	4	3.58	1.0
I try not to look at someone who has a disability.	4	3.75	0.62
I would invite a child with a disability to sleep over at my house.	3	3.5	0.91
I would tell my secrets to a child with a disability.	3	3.00	1.13
I would not go to the house of a child with a disability to play.	4	3.50	1.0
I would miss recess to keep a child with a disability company.	3	3.75	0.62

Note. Items were scored on a Likert scale from 1 'definitely disagree' to 4 'definitely agree' in which higher ratings indicate more positive behavioural attitudes.

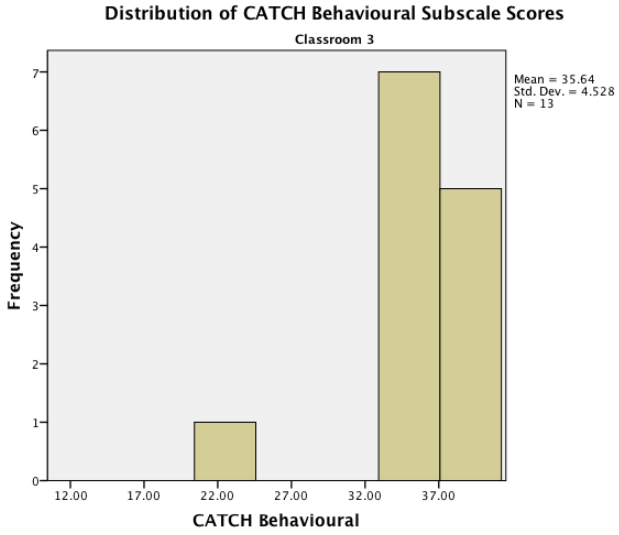

Figure 36. Distribution of CATCH Behavioural subscale scores for classroom three. The subscale score for the student with ASD is not included. Higher scores indicate more positive behavioural attitudes.

Students reported an overall mean of 30.18 (SD – 2.37) in the area of affective, indicating moderately positive attitudes in this area. A review of items indicated that as a class, students reported that children with disabilities can't do many things for themselves, want lots of attention from adults, feel sorry for themselves, don't know how to behave properly, don't have as much fun, are often sad, and needs lots of help. More positive ratings were found related to children with disabilities like to play, like to make new friends, are as happy as children without disabilities, are interested in lots of things, and can make new friends. The target student with ASD reported an overall score within two standard deviations of the class mean, indicating more negative cognitive attitudes than the class average. He reported children with disabilities don't like to play, want lots of attention from adults, and needs lots of help to do things.

Table 43

Distribution of CATCH Cognitive Subscale Scores for Classroom Three

Subscale Item	Target Student Response	Class *M*	Class *SD*
Cognitive Total	**27.50**	**30.18**	**2.37**
Children with disabilities like to play.	2	3.58	0.52
Children with disabilities want lots of attention from adults.	1	2.85	0.90
Children with disabilities don't like to make friends.	3	3.82	0.41
Children with disabilities feel sorry for themselves.	3	2.58	0.67
Children with disabilities are as happy as I am.	4	3.17	0.94
Children with disabilities know how to behave properly.	3	2.75	0.97
Children with disabilities don't have much fun.	3	2.92	1.0
Children with disabilities are interested in lots of things.	3	3.42	0.90
Children with disabilities are often sad.	4	2.83	0.94
Children with disabilities can make new friends.	3	3.83	0.39
Children with disabilities need lots of help to do things.	1	1.92	0.90

Note. Items were scored on a Likert scale from 1 'definitely disagree' to 4 'definitely agree' in which higher ratings indicate more positive cognitive attitudes.

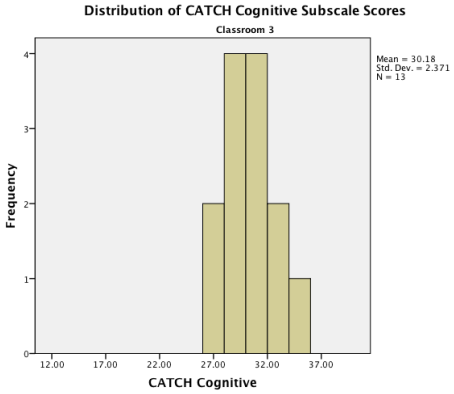

Figure 37. Distribution of CATCH Cognitive subscale scores for classroom three. The subscale score for the student with ASD is not included. Higher scores indicate more positive cognitive attitudes.

General education teacher variables.

The general education teacher for classroom three was a 28-year-old African American female. She had three years teaching experience, no previous experience teaching students with ASD, and her highest degree obtained was a Bachelor's. With regard to autism knowledge, the classroom teacher responded correctly to 11 out of the 15 items, with a percent correct score of 80%. She did not respond 'Don't Know' to any items and responded incorrectly to four items.

Table 44

Teacher Responses on AIQ Knowledge for Classroom Three

Correct (n = 11)	Incorrect (n = 4)	Don't Know (n = 0)
ASDs are developmental disorders.	Children with ASDs are very similar to one another.	
Genetic factors play an important role in the cause of ASDs.	The diagnostic criteria for Asperger's Syndrome are identical to High Functioning Autism.	
ASDs exist only in childhood.	Most children with ASDs have special talents or abilities.	
Behavior therapy is an intervention likely to be effective for children with ASDs.	The core deficits in ASDs are impaired social understanding, language abnormalities, and impaired sensory functioning.	
Early intervention demonstrates no additional benefit to children with an ASD.		
If an intervention works for one child with an ASD, it will definitely work for another child with an ASD.		
Medication can alleviate the core symptoms of ASDs.		
Most children with ASDs have cognitive abilities in the intellectually disabled range.		
In many cases, the cause of ASDs is unknown.		
Traumatic experience very early in life can cause an ASD.		

With proper intervention, most children with an ASD will eventually "outgrow" the disorder.	

Note. Teacher participant responded 'true,' 'false,' or 'don't know' to each item.

The general education teacher from classroom three obtained a total attitude score of 12, indicating positive attitudes towards the inclusion of students with ASD.

Furthermore, eleven of the items assess teacher attitude towards possible factors that may contribute to successful inclusion of students with ASD. The teacher indicated that the help of a paraprofessional, the attitude of staff, one-on-one intervention, encouraging students with ASD to interact with typically developing peers, and the use of a reinforcement schedule are important factors that contribute to successful inclusion. Factors that were reported to not be important for the successful inclusion included the personality of the student, medication and drug therapy, only teachers with extensive special education experience, and the role of special schools. More neutral responses were reported with regard to the academic ability of the student and the severity of the disability.

A total score of 60 was obtained for 'Classroom Behaviors' by adding the score of each of the 20 items. Specific ratings are provided in the table below. The target student in classroom three was reported, based on teacher ratings on the SSRS problem behaviors, to very often talk back to adults when corrected (highly disruptive). He was reported to sometimes be easily distracted (somewhat disruptive) and not listen to what others say (somewhat disruptive).

Table 45

Teacher Ratings on AIQ Classroom Behaviors for Classroom Three

Highly Disruptive	Disruptive	Somewhat Disruptive	Slightly Disruptive	Not at all Disruptive
Aggression	High levels of activity	Aloofness	Lack of peer relations	Eye contact avoidance
Non-compliance	Inappropriate emotionality	Difficulty in reciprocal conversation	Preoccupation with one thing	Fear of harmless objects
Screaming/ crying/ tantruming	Resistance and negative reaction to changes in the schedule	Off-task behavior	Problems with non-verbal behavior	Preoccupation with touching/ smelling/
	Rudeness in making requests	Poor peer relations	Strange or unusual body movements	
		Repetitive/ bizarre/ echolalic speech		
		Sensitivity to sounds.		

Note. Each behavior was rated on a Likert scale from 'highly disruptive' to 'not at all disruptive.'

A total awareness score on 'Classroom Practices' of 24 was obtained and a total use score of 0 was obtained. This indicates that although the teacher reported awareness of a relatively high number of classroom strategies, the ones she reported using were not found to be evidence-based.

In addition to the evidence-based practices, additional items were included related to peer/social skills, classroom modifications, instructional techniques, and behavior management strategies.

Table 46

Teacher Ratings on AIQ Use of Strategies for Classroom Three

Currently Using	Use in the past	Never used
Direct instruction of social skills$_1$	Peer tutoring strategies$_1$	Educating peers about ASD$_1$
Preferential seating$_2$	Providing a list of schedule changes$_2$	Peer initiation strategies$_1$
Provide a list of teacher expectations$_2$	Behavior contract$_4$	Providing student a 'home base'$_2$
Extra time on assignments$_3$	Token economies$_4$	Priming$_3$
Prompting$_3$		Token economies$_4$
		Visual activity schedules$_3$
		Edible reinforcement$_4$
		Functional Behavior Assessment$_4$
		Verbal reinforcement$_4$

Note. The teacher responded to each item 'currently using,' 'used in the past,' or 'never used.' 1 = peer/social skills; 2 = classroom modifications; 3 = instructional techniques; 4 = behavior management strategies.

No strategies were rated as 'very effective.' Strategies rated as 'effective' included behavior contract, direct instruction of social skills, extra time to complete assignments, preferential seating, prompting, and providing a list of teacher expectations. Strategies rated as 'somewhat effective' included ABA, art therapy, assistive technology, and AAC. None of the strategies were rated as 'not effective.'

Cross Case Study Analysis

Research Question 1: How well do students with ASD fit in within the social structure of the classroom?

Consistent with previous research, the three target students with ASD in this study were found to fit within the social structure of the classroom to varying degrees. While the target student with ASD from classroom three was found to be isolated with no connections to any other peer in the classroom, the target students from classrooms one and two were found to be secondary within the classroom social network. Both students achieved secondary status with connections to two other peers in the classroom, all of whom were secondary or peripheral themselves. However, a close examination of the factors that contribute to overall social network status reveal that although target students one and two were both found to have secondary social network centrality, there are several differences that should be noted.

Indegrees.

Target student three did not receive nominations from any other student in the class as someone with whom they liked to hang out. The indegrees value obtained for target student three is generally consistent with overall social network data in that he was isolated, not belonging to any social clusters within the classroom. This value falls outside of one standard deviation of the class mean.

Target student one also did not receive nominations from any other student in the class as someone with whom they like to hang out. This value fell outside of one standard deviation of the class mean. However, overall social network data indicated that target student one belonged to a social cluster with two other students, neither of whom

participated in the study. Therefore, while target student one did not receive any nominations, indicating that generally students in the class did not identify him as someone whom they liked to hang out with, there were two students in the class who were consistently reported as his friends. It is reasonable to expect that had these students participated in the study, they may have listed target student one under this category, potentially increasing his indegrees value from zero to two.

Target student two differed from the other target students in that he received three indegrees nominations. Two of these nominations came from students in the class whose social network data indicated belonging to a social cluster with the target student. A third nomination came from a female peer not belonging to his social cluster and who was peripheral within the classroom and has low individual centrality. The indegrees value obtained for target student two fell within one standard deviation of the class mean. This information indicates that while target student two only received three indegrees nominations, this value did not generally differ from his classroom peers. He was the only target student to receive indegree nominations and was identified by two students in the class who were reported to belong to the same social cluster as him, as well as by a third peer.

Outdegrees.

Target student three did not nominate any other student in the class as someone with whom he liked to hang out. Again, this outdegree value obtained for target student three is generally consistent with overall social network data in that he was isolated, not belonging to any social clusters within the classroom. This value is noteworthy in that the outdegrees value simply represents the number of students one reports to like to "hang

out with" and does not necessitate friendships levels of "top three" or "best friend." However, target student three still did not provide any nominations. This value falls outside of three standard deviations of the class mean. In addition, because he did not provide any outdegree nominations, he also was not found to have a reciprocated best friend nomination.

Target student one provided nominations of two students in the class with whom he liked to hang out. This value fell outside of one standard deviation of the class mean. The two students (Peer A and Peer B) nominated by target student one did not nominate the target student in return. Peer A (secondary status) nominated by the target student, nominated five students and Peer B (nuclear status) nominated 10 students. Based on the outdegree nominations provided by target student one, he was not found to have a reciprocated best friend nomination. This indicates that in providing equal to or more than the class average of outdegrees, the student with ASD was not included in the outdegrees for these two peers, even though these were the only two peers identified by the student with ASD as someone with whom he liked to hang out. However, it should be noted again that overall social network data indicated that target student one belonged to a social cluster with two other students, neither of who participated in the study. It is unknown whether target student one could have accurately identified his friends, as reported by his classmates, had they participated in the study or if he was unable to accurately identify friendships.

Target student two differed from the other target students in that he provided seven outdegrees nominations. The outdegrees value obtained for target student two fell within one standard deviation of the class mean. Two of the seven students whom he

selected were two students who had also selected him and who were identified by the class as belonging to the same social cluster as him. When asked to indicate his best friend within the seven nominations made, target student two selected a peer who had also selected him as his one best friend, confirming a reciprocal best friend nomination. He was the only target student with ASD to report a reciprocal best friend nomination. The five other students selected by target student two did not reciprocate the nomination. Three of the students were female and two were male. Two of the peers had nuclear social status, one was secondary, and two were peripheral. This information indicates that target student two felt as though there were several peers within the classroom with whom he liked to "hang out." Furthermore, this information indicates that target student two was able to accurately identify his friends within the classroom, as confirmed by aggregated classroom social network data.

Research Question 2: Do students with ASD with higher reported social skills seem to fit in better?

Target student one was reported to have below average social skills (Standard Score = 85), target student two was reported to have average social skills (Standard Score = 97), and target student three was reported to have below average social skills (Standard Score = 80) based on teacher ratings on the SSRS. Parent ratings were found to be significantly lower across the three target students based upon ratings of skills in the home and community settings. Because this study was interested in examining the skills and experiences of students with ASD in the school setting, the teacher ratings on the SSRS was the focus.

Ratings in the area of cooperation indicate that all three target students demonstrated similar skills as it relates to complying with adult instructions, following classroom routines and expectations, and managing materials.

Table 47

SSRS Cooperation Subscale Ratings of Target Students with ASD

Cooperation	**Target Student One**	**Target Student Two**	**Target Student Three**
Uses free time in acceptable way.	2	1	2
Finishes class assignments within time limits.	1	2	2
Uses time appropriately when waiting for help.	2	2	0
Produces correct schoolwork.	1	2	1
Follows your (teacher) directions.	2	2	1
Puts work materials or school property away.	2	2	2
Ignores peer distractions when doing class work.	1	2	1
Keeps desk clean and neat without being reminded.	2	2	0
Attends to your instructions.	1	1	1
Easily makes transition from one classroom activity to another.	1	1	2
Total	**15**	**17**	**12**

Note. 0 = never; 1 = sometimes; 2 = very often.

Ratings in the area of assertion indicate that target student one demonstrated the most behaviors related to friendship seeking behaviors.

Table 48

SSRS Assertion Subscale Ratings of Target Students with ASD

Assertion	**Target Student One**	**Target Student Two**	**Target Student Three**
Introduces himself to new people without being told.	2	1	0
Appropriately questions rules that may be unfair.	0	1	1
Says nice things about himself when appropriate.	2	2	1
Invites others to join in activities.	1	1	0
Makes friends easily.	0	1	0
Initiates conversations with peers.	2	0	0
Appropriately tells you when he thinks you have treated him unfairly.	0	0	0
Gives compliments to peers.	1	0	0
Volunteers to help peers with classroom tasks.	1	0	0
Joins ongoing activity or group without being told to do so.	1	0	0
Total	**10**	**6**	**2**

Note. 0 = never; 1 = sometimes; 2 = very often.

Ratings in the area of self-control indicate that target student two demonstrated the most behaviors related to handling social situations, interacting appropriately with peers, and handling frustration appropriately.

Table 49

SSRS Self-Control Subscale Ratings of Target Students with ASD

Self-Control	**Target Student One**	**Target Student Two**	**Target Student Three**
Controls temper in conflict situation with peers.	0	2	1
Compromises in conflict situations by changing own ideas to reach agreement.	0	1	0
Responds appropriately to peer pressure.	0	2	1
Responds appropriately to teasing by peers.	0	2	1
Controls temper in conflict situation with adults.	0	2	1
Receives criticism well.	0	1	1
Accepts peers' ideas for group activities.	1	2	0
Cooperates with peers without prompting.	0	1	1
Responds appropriately when pushed or hit by other children.	0	1	1
Gets along with people who are different.	1	1	2
Total	**2**	**15**	**9**

Note. 0 = never; 1 = sometimes; 2 = very often.

Based on the compilation of ratings on items pertaining to social skills, target student two demonstrated the highest level of social skills overall, particularly as it relates to behaviors related to self-control. Furthermore, various social network data (indegrees, outdegrees, reciprocal best friend, individual centrality, cluster centrality, and social network centrality) indicate that target student two was found to fit in best within the social network of the classroom. However, although target students one and three were rated to have similar qualities of social skills (both in the below average range), their level of social inclusion was found to be noticeably different. Therefore, a cross case analysis in regard to social skills and social inclusion indicate that while the quality of social skills can be a contributing factor to social inclusion of students with ASD, quality of social skills in isolation does not determine the level of social inclusion.

Research Question 3: Are students with ASD lonelier than students without ASD based upon self-report ratings and are ratings of loneliness related to social network status (i.e., are students who are more central in the social network less lonely whereas students who are more isolated more lonely)?

Consistent with previous research, the three target students with ASD were found to self-report various levels of loneliness. Target student three was found to report high levels of loneliness, with a total score of 75 (maximum possible score of 80), which falls outside of three standard deviations of the class mean. Target student three was also found to nominate no students as someone with whom he liked to "hang out," be nominated by no students as someone with whom they liked to "hang out," and be isolated within the social network of the classroom. Target student three was also reported to be in a social cluster by himself by three out of the 13 student ratings.

Target student one was found to report a total loneliness score of 42. While his overall score was found to be higher than the class mean, it fell within one standard deviation of the mean. Target student one was found to belong to a social cluster with two other students and to have secondary social network centrality. However, his inability to accurately identify the members of his social cluster, as consistently reported by his peers, may have impacted his feelings of loneliness. Although he was reported to belong to a social cluster and to have two friends within the classroom, target student one either did not recognize these two relationships as friendships or did not consider the interactions with these peers to warrant what he would consider a friendship.

Target student two was found to self-report a total loneliness score of 34. This score was generally equivalent to the class mean (32.22). Target student two was found to

fit in best within the social structure of the classroom based upon ratings on indegrees, outdegree, reciprocal best friend nomination, and social network centrality.

Findings related to self-reported scores of loneliness and social inclusion indicated that feelings of loneliness can vary among students with ASD educated primarily in the general education classroom. Furthermore, feelings of loneliness can be related to factors of inclusion such as the number of students identified by the student with ASD as someone whom they like to "hang out with" as well as the accuracy of these nominations, the number of nominations received by the student with ASD from other students as someone they like to "hang out with," a reciprocal best friend nomination indicating awareness of friendship, and social network centrality scores. Students with ASD with greater values for indegrees and outdegrees, including accurate reciprocal ratings, as well as secondary social network status, may experience lower levels of loneliness.

Research Question 4: Do students with ASD report similar qualities of friendship (i.e., a similar understanding of the features of friendship) to students without ASD and are ratings of qualities of friendship related to social network status and self-reported loneliness?

Target student three, who was found to be socially isolated, selected a best friend from outside of the classroom and was found to report scores within one standard deviation of the mean in the areas of companionship and security, and scores within two standard deviations of the mean in the areas of help and closeness. Lower scores were reported in the area of conflict indicating that he experienced lower levels of conflict with his best friend than was reported through the class mean. These ratings indicate that

although target student three was found to be socially isolated within the classroom with no social connections to peers, he self-reported having at least one best friend outside of the classroom with a relationship characterized by adequate levels of companionship, security, and conflict.

Target student one, who was found to generally fit in based on social network status, selected a best friend from outside of the classroom. He reported scores within one standard deviation of the class mean in the area of closeness, within two standard deviations in the area of security, and outside of two standard deviations in the areas of companionship and help. Lower scores were reported in the area of conflict indicating that he experiences lower levels of conflict with his best friend than was reported through the class mean. These scores indicate that although target student one identified someone as his best friend from outside of the classroom, the constructs typically found to be related to friendship relationships were rated low. As previously discussed, target student one was not able to accurately identify friendship connections within the classroom based on information provided on the Friendship Survey. Findings related to his difficulty identifying relationships and levels of self-reported loneliness may be related to scores found on the Friendship Qualities Scale and his understanding of the constructs of friendship. Target student one reported spending time thinking about his friend, missing his friend if the friend moved away, and limited arguments. However, ratings in other areas did not indicate that they did in fact spend time together, that his friend would stick up for him if he was being teased or bothered, or that he could talk to his friend about things that were bothering him.

Target student two, who was found to fit in best socially based on secondary social network status, accurately selected a best friend from within the classroom based upon reciprocal best friend nomination and aggregated peer report. He was found to report the most positive ratings in the areas of conflict, companionship, help, and closeness in that these scores were found to be more positive than the class mean. Ratings in the area of security were found to be within one standard deviation of the mean. This information indicates that not only was target student one able to accurately identify a best friend relationship, but that the relationship was characterized by positive ratings in the all constructs related to friendship. The directionality of the possible relationships of the variables is unknown: because target student two had formed a best friend relationship was he able to better identify and more positively report on the various constructs of friendships or, in contrast, because he had a better understanding of the constructs of friendship was he better able to accurately identify a best friend relationship? The best friend selected by target student two in completing the Friendship Qualities Scale selected a peer from outside of the classroom in completing the measure. Therefore, unfortunately measures of the construct of friendship by the best friend were unable to be obtained and compared.

Research Question 5: What are the attitudes of students without ASD towards children with disabilities? Is the attitude of students without ASD towards children with disabilities related to the social network status and reports of loneliness of students with ASD?

Overall, students across all three classrooms reported moderate/neutral attitudes towards children with disabilities across the areas of affective, behavioural, cognitive,

and total scores. Classroom one was found to have the lowest ratings, with average scores found to fall in the slightly negative range for affective, cognitive, and total and scores in the slightly positive range for behavioural. Classroom three was found to have the highest ratings, with average scores found to fall in the slightly positive range across all four areas. Classroom two was found to have moderate ratings, with average scores found to fall in the slightly negative range for cognitive and total and scores in the slightly positive range for affective and behavioural.

Based on these three classes, ratings related to the attitudes towards children with disabilities by classroom peers do not appear to be related to the social inclusion and social network status of students with ASD. Somewhat surprisingly, classroom three reported the most positive attitudes toward children with disabilities and the student with ASD within classroom three was found to be isolated and report the highest levels of loneliness. Similarly, peers within classrooms one and two reported overall slightly negative scores related to attitudes towards children with disabilities and the two target students with ASD within those classroom were found to have secondary social network status and lower levels of loneliness.

Because the rating scale could not specifically assess attitudes towards children with ASD, these findings raise an important point related to whether typical peers associate the behaviors, strengths, and deficits related to ASD with a disability. Across classrooms, peers tended to rate the most positive attitudes in the area of behavioural, indicating positive behavioral intentions and beliefs related to talking to a child with a disability, sticking up for a child with a disability, and spending time with a child with a disability. The most negative rating found across classrooms within the behavioural

subscale was related to telling secrets to a child with a disability. Overall ratings indicated that while peers believed that children with disabilities require adult attention, need a lot of help, and do not know how to behave properly, they still reported mostly positive behavioural attitudes towards how they would treat a child with a disability.

The target students with ASD reported scores generally consistent with classroom scores as it relates to attitudes toward children with disabilities. Target student one, who approached the researcher to disclose that he had a disability called ADHD, was found to report higher scores across all area in comparison to his classroom peers and in comparison to the other target students with ASD.

Research Question 6: Are general education teacher experience, knowledge of ASD, attitudes toward the inclusion of students with ASD, perception of disruptive behaviors, and their knowledge and use of evidence-based practices for students with ASD related to the social network status of students with ASD?

Experience

Classroom teachers one and two reported more teaching experience in regard to number of years teaching and previous experience with teaching students with ASD. Both also reported obtaining a Master's degree whereas classroom teacher three had obtained a Bachelor's as her highest degree. Classroom one was found to have the largest number of students with current IEP's (n = 8) within the classroom. This teacher reported having had five students with ASD educated within her general education classroom during the last three school years. Classroom teacher two reported working as a special education collaborative classroom with the special education teacher for the last four

school years. Classroom teacher three reported no previous experience with students with ASD.

Knowledge of ASD.

In regard to knowledge of ASD in the areas of symptoms and diagnosis, treatment and intervention, and etiology, all three classroom teachers achieved a percent correct score above seventy percent. Classroom teacher two obtained the highest score with ninety-two percent correct and classroom teacher one obtained the lowest score with seventy-three percent correct. All three teachers incorrectly responded to an item assessing the core deficits of ASD.

Attitude toward inclusion.

All three classroom teachers reported positive attitudes toward the inclusion of students with ASD. Classroom teacher one reported the most positive attitudes with a total score of seven while classroom teacher two reported the least positive attitudes (while still considered within the positive range) with a total score of 17. All three teachers agreed that the use of a paraprofessional, attitude of the staff, and one-on-one intervention are all important factors for the successful inclusion of students with ASD. These factors are interesting in that high-functioning students with ASD who are educated in the general education classroom 80% or more of the day typically are not supported through the use of a paraprofessional or one-on-one intervention. However, all of the classroom teachers reported these factors as being important for the successful inclusion of students with ASD. They also agreed that personality of the student, medication, having only teachers with extensive experience, and special schools are not important factors for the successful inclusion of students with ASD.

Disruptive behaviors.

All three classroom teachers agreed that aggression is a highly disruptive behavior within the classroom. Two of the teachers (classrooms two and three) reported that non-compliance is highly disruptive. Likewise, two of the teachers (classrooms one and three) reported that screaming/crying/tantruming is highly disruptive. Eye contact avoidance, lack of peer relations, and strange or unusual body movements were all found to be slightly disruptive to not at all disruptive across teachers. While lack of peer relations does not appear to be disruptive to the teacher's classroom experience and expectations, it can be expected that lack of peer relations could be disruptive to the experiences of the students with ASD.

Awareness and use of evidence-based practices

Teachers reported generally high awareness of practices, with scores ranging from 18 (classroom teacher two) to 24 (classroom teacher three). These total values do not take into consideration whether the practices teachers indicate being aware of are evidence-based. However, teachers were found to report varying levels of use of evidence-based practices in that classroom teacher one obtained a total score of 10 while classroom teachers two and three obtained a total score of 0. The five practices reported to be currently or previously used by classroom teacher one, that had also been found to be promising practices, were assistive technology, AAC, PECS, sensory integration, and social stories. One reason why overall use of evidence-based practices may have been found to be low across the three classroom teachers is that many of the evidence-based strategies provided are more applicable to lower functioning or younger students with ASD.

Classroom teachers also reported on their use of strategies to address peer/social skills, classroom modifications, instructional techniques, and behavior management strategies. Classroom teacher three reported the lowest overall use of these strategies while classroom teachers one and two reported higher but similar overall use of these strategies. Classroom modifications were found to be the most commonly used across the three teachers. In the area of peer/social skills, two teachers reported current use of direct instruction of social skills (classrooms one and three) while classroom teacher three also reported previous use. All three teachers reported previous use of peer tutoring strategies. Classroom teacher one reported previous use of educating peers about ASD, while classroom teachers two and three reporting never having used that strategy. Because the study was conducted at the end of the school year, it is unknown whether previous use indicates use in prior school years or previous use within the current school year across items. For example, classroom teacher one may have done a presentation at the beginning of the school year educating peers about ASD but the peer education may not have been a strategy or intervention that needed to continue throughout the school year. Therefore, in answering the question regarding use of strategies, the teacher may have indicated that while the strategy had been previously used, it is no longer in current use although use of the strategy may have impacted the target student with ASD throughout the school year.

Information obtained from the general education teachers of the target students with ASD indicate that for the two target students who were found to fit in better socially within the classroom based on social network data, the classroom teachers reported more years of teaching experience, previous experience teaching students with ASD, and a larger number of students with a current IEP in their classroom. All three teachers were

found to have general knowledge of ASD and overall positive attitudes toward the inclusion of students with ASD. Deficits related to the social and communication skills typically found among high-functioning students with ASD were found to be less than disruptive than externalizing behaviors such as aggression, high levels of activity, non-compliance, and off-task behavior.

Chapter 5

Discussion

While all students may experience difficulty at some point with forming friendships and fitting in socially with their peers, students with ASD have known social and communication deficits that are inherent to their disability that can make it even more difficult to form relationships with peers and fit into the social network of a general education classroom. Previous research has indicated that while students with ASD are typically not as centrally involved as their peers without ASD within the social network of the classroom, approximately half of students with ASD are found to be peripheral or secondary, while some are found to be nuclear or isolated.

This finding indicates that it is more than a diagnosis of ASD that is contributing to how well each individual student with ASD fits in within the social structure of the classroom. Using an ecological framework (Bronfenbrenner, 1979) allows researchers to examine additional factors at the individual (student factors) and micro (peer and general education teacher factors) levels that may also be contributing to the social experiences of students with ASD. This research is conducted in consideration of the additional levels of an ecological framework in which our educational system is moving towards the inclusion of students with disabilities (exo) and our society seeks to promote the inclusion of individuals with disabilities and address national issues related to bullying (macro).

This study sought to use an ecological framework to investigate certain child, peer, and general education teacher factors as they relate to the social network status and

social participation of students with ASD. Findings related to each of these factors will be discussed. Limitations and future research will be addressed.

Social Inclusion

This case study of three male students with ASD educated primarily in the general education classroom found that two of the three students were found to be secondary within the social network of the classroom while one student was found to be isolated. This finding is consistent with previous research in that some students with ASD are more socially embedded within the social network of the general education classroom than other students with ASD.

Previous research findings have suggested that because students with ASD have deficits related to theory of mind as well as other social and communication deficits, they often have difficulty understanding their social status in relationship to peers, particularly as it relates to social relationships. However, two out of the three students with ASD in the current study were found to be able to accurately identify their friendships within the classroom, but in contrasting ways. More specifically, target student three accurately identified that he did not have any friends within the classroom, neither nominating students to his own list or being nominated by other students to their list. When asked to list the various groups of students in the class who hang out with one another, he responded by writing “every boy except me” and “every girl.” Aggregated classroom data confirmed that target student three was, in fact, socially isolated within the classroom. Whereas some students with ASD may make friendships nominations even though they are socially isolated within the classroom, target student three was aware of his isolated status and did not nominate any peers as his friend.

On the other hand, target student two was found to nominate seven students to his list of students with whom he likes to hang out. Within the seven nominations, he accurately reciprocated a best friend nomination. The two other students whom he selected to his "Top Three" list did not reciprocate the nomination. While some of the students nominated to his list did not reciprocate the nomination, two out of the five possible students did reciprocate the nomination. His ratings indicate that he had a generally accurate representation of his social relationships in the classroom and felt generally socially accepted in that he listed several students as someone who he spends time or is friends with.

However, more consistent with previous research, target student one had more difficulty in accurately identifying friendships in that he listed students who did not reciprocate the friendship nominations. This discrepancy was observed even though he was found to have secondary social network status and connections with two peers within the classroom.

Child Factors

Social skills.

Due to the social and communication deficits inherent in students with ASD, research has begun to examine the impact that the quality of social skills of the child with ASD, in turn, has on the actual development of friendship and social network status within the general education classroom. Results from this study found that the target student with ASD with the highest reported quality of social skills (average range) in the school setting was found to have the highest number of friendship nominations received, secondary social network status, and a reciprocated best friend nomination. The two other

target students who had below average social skills as reported in the school setting were found to have received zero friendship nominations, be secondary or isolated within the classroom social structures, and not have a reciprocated best friend nomination. Furthermore, the student with ASD with the lowest quality of social skills as reported by the teacher (SS = 80) was found to be socially isolated. These findings suggest that the quality of social skills is likely a contributing factor to the quality of social experiences of students with ASD within the general education classroom as assessed through social network data. However, one limitation related to this study finding is that the range of standard scores for the quality of social skills of the three students with ASD did not vary drastically. Although the three students with ASD had social skills rated in the average (SS = 97) to slightly below average range (SS = 85, 80), future research should seek to include, if possible, students with ASD with more variance among their quality of social skills. Alternative measures of social skills, such as non-standardized measures, may be considered for future use to ensure that all areas of social skills are assessed particularly for students with ASD.

Loneliness.

Previous research has documented that some children with ASD reported more feelings of loneliness than typical peers (Bauminger et al., 2003; Lasgaard et al., 2010) while other research has found instances in which children with ASD do not report greater feelings of loneliness than typical peers, despite having few friends within a class (Chamberlain, 2001; Chamberlain et al., 2007). Results from this study indicate that the self-reported levels of loneliness of students with ASD can vary. More importantly, the self-reported levels of loneliness appear to be related to the social network status. Target

student three who was found to be socially isolated within the class with zero social connections was also found to report the highest levels of loneliness among students with and without ASD (total score of 75 with a maximum score of 80). Similarly, target student two who was found to be nominated as a friend by his peers, have secondary social network status, and have a reciprocated best friend was found to report levels of loneliness equivalent to his general education peers.

Target student one who had difficulty self-identifying friendships within the classroom, but who was reported by peers to have two friends and was found to have secondary social network status, was found to report levels of loneliness in-between target students two and three. His overall score was found to fall within one standard deviation of the mean. These findings suggest that the three target students in this study were self-reporting levels of loneliness that may be connected to or reflective of their social experiences within the classroom. Moreover, these findings lend support for the validity of the Loneliness Scale for students with ASD because their total loneliness scores appeared to generally align with the social network data, suggesting that students with ASD with some friends (either self-reported or peer-reported) report less loneliness than students with ASD with no friends (both self-reported and peer-reported).

Qualities of friendship.

Previous research has suggested that students with ASD may have difficulty understanding the features or constructs known to be associated with friendship. Using the Friendship Qualities Scale previous research has indicated that, as compared to typical peers, children with ASD have reported significant differences in as few

constructs as one (companionship) to as many as four of the five constructs (closeness, security, helpfulness, companionship).

Findings of this study indicate that the three target students with ASD reported varying degrees of the constructs of friendship for a self-identified best friend. Although target student three was found to be socially isolated within the classroom with no social connections to peers, he self-reported having at least one best friend outside of the classroom with a relationship characterized by adequate levels of companionship, security, and conflict.

Target student one identified someone outside of the classroom as his best friend and all constructs, with the exception of conflict and closeness, were found to be rated outside of two standard deviations of the class mean. As previously discussed, target student one was not able to accurately identify friendship connections within the classroom based on information provided on the Friendship Survey. These findings together suggest that target student one may have had difficulty understanding the constructs of friendship which may, in turn, be related to his difficulty accurately identifying social relationships that involved him as well as his self-reported feelings of loneliness. If he lacked the knowledge or skills necessary to understand what friendship is, then he may have had difficulty understanding that certain children were his friends and thus may have experienced greater levels of loneliness.

Target student two was found to report the most positive ratings in the areas of conflict, companionship, help, and closeness in that these scores were found to be more positive than the class mean. Ratings in the area of security were found to be within one standard deviation of the mean. This information indicates that not only was target

student one able to accurately identify a best friend relationship, but that the relationship was characterized by positive ratings in the all constructs related to friendship. The directionality of the possible relationships of the variables is unknown in that because target student two had formed a best friend relationship, was her able to identify better and more positively report on the various constructs of friendships or, in contrast, because he had a better understanding of the constructs of friendship was he better able to accurately identify a best friend relationship?

Peer Factor

Peer attitudes toward children with disabilities.

Previous research has indicated that children without disabilities traditionally hold negative attitudes towards children with a range of disabilities, but that these attitudes more recently may be more positive, particularly attitudes towards children with physical disabilities. (De Boer et al., 2012). Findings from this study indicate that peers across three classrooms reported generally moderate or slightly positive attitudes toward children with disabilities in general. More positive ratings were found regarding attitudes related to behavior whereas more negative ratings were found regarding cognitive attitudes. This indicates that although children with disabilities continue to be educated alongside their peers without disabilities and seek academic and social benefits from inclusion, children without disabilities continue to have attitudes towards children with disabilities that are not overtly positive. The most positive attitudes were found among students in classroom three, where the target student with ASD was found to be socially isolated with no social connections.

Given the nature of high-functioning ASD in that this diagnosis does not have associated physical attributes and receptive and expressive communication skills and cognitive skills are often found to be in the average range, findings question whether children without disabilities identify and understand ASD as a disability. Without explicit instruction in this area, students without disabilities will likely notice the unique characteristics of students with ASD that are a result of the disability but not have the knowledge and instruction to understand the relationship between these characteristics and the disability. While attitudes toward children with disabilities in general are relatively neutral, these attitudes may be more negative towards children with ASD who are not easily identifiable as students with a diagnosed disability, yet who have deficits that directly impact their social and communication skills.

General Education Teacher Factors

Findings from this study suggest that the three general education teachers reported generally high percentage of autism knowledge as well as overall positive attitudes toward the inclusion of students with ASD. Teachers were found to report a higher awareness and use of general strategies for supporting the inclusion of students with ASD in comparison to their knowledge and use of evidence-based practices. Overall, behaviors typically associated with ASD were not reported to be disruptive within the classroom. Because ratings on knowledge of autism, attitude towards the inclusion of autism, and awareness of practices to facilitate inclusion of students with ASD were not found to vary among the three teachers in this study, these factors may not have contributed to the varying levels of social inclusion found. However, it was found that students with ASD had higher levels of social inclusion and social satisfaction in the

two classes where the general education teachers had more years teaching experience, more years teaching experience specifically with students with ASD, and a higher degree obtained. While these descriptive variables regarding general education teachers may alone not impact the social inclusion and social experiences of students with ASD, they may contribute to other factors that were not assessed within this study such as a teacher's comfort level and confidence in instructing and including students with ASD.

Limitations and Future Strategies to Overcome Limitations

There are several limitations within this study. A sample size of 15 to 20 students with ASD in third through fifth grade with their respective classmates, general education teacher, and primary guardian was originally sought. However, as documented through the recruitment flowchart provided in chapter three, several barriers to recruitment were encountered, resulting in a sample size of three students with ASD. Such barriers included the following: three general education teachers were already involved in a separate research study, one teacher was enrolled in graduate coursework and did not want to take on participation in a research study, one teacher had experienced several issues with the family of the student with ASD throughout the year and declined participation, and several teachers expressed a history of difficulty with communicating with the family of the student(s) with ASD (i.e., no working phone numbers, student backpack is never checked for paperwork, etc.). Additionally, an extensive number of school days were missed during the school year for which the study took place, resulting in the state testing taking place much later in the year than what is typical. As a result, some teachers declined participation because of the timing of the study in relationship to the state testing window.

Future research in this area should consider ways to better work with the schools in supporting teachers to participate in the study when balancing other commitments or responsibilities. Additionally, it would be beneficial to find ways to work more closely with the school in coming up with additional means through which try to make contact with and recruit families where barriers such as non-working phone numbers and low parent involvement were encountered. The use of incentive for participation of families and teachers should also be considered since it was not used for the current study.

This small sample size prohibited the use of statistical analyses and required that the study be presented in a multiple case study format providing detailed and specific accounts of particular cases rather than offering broad generalized findings. In addition to the three students with ASD, 44 peers, three general education teachers, and three primary guardians of the student with ASD also participated. However, it is unknown why certain individuals within each participant category agreed to participate in the study whereas others declined participation. There is no way to determine if certain individuals declined participation due to the nature of the study, in that those who felt more negatively about how social experiences related to their participation in the study may have chosen not to participate whereas others who felt more positively chose to participate or vice versa. Additionally, although ASD is found in a higher rate in males than females, this study fails to address the social experiences and needs of female students with ASD, and how they may differ from those of male students with ASD, due to the sample consisting only of male students with ASD.

Additional limitations exist related to the measures used. Each student was asked to complete four rating scales, taking a total of approximately 30 minutes. All items were

read aloud and students were generally asked to circle item responses as opposed to provide written responses, which should account for fatigue being a possible factor in how accurately students rated each item as they progressed through the rating scales. The measures were administered in the following order across classrooms: Friendship Survey, Friendship Qualities Scale, Loneliness Scale, and CATCH. Based on the constructs being measured, this particular order of measures was determined to be appropriate and because the different rating scales measured similar constructs, a consistent order of rating scales was maintained across classrooms so that the content of one rating scale would not impact the responses for another rating scale differently across classrooms.

Internal consistency values were found to range from acceptable to excellent for the following scales and subscales: Loneliness total, Friendship Qualities Scale subscales of conflict and help, Friendship Qualities Scale total, CATCH subscales of affective and behavior, and CATCH total. Questionable ratings of internal consistency were found for the Friendship Qualities subscales of security and closeness and unacceptable ratings were found for the CATCH cognitive subscale. The low internal consistency values should be taken into consideration when interpreting results related to those particular subscales.

Based on pilot data obtained using the selected measures, a concern was raised related to frequent neutral responses being provided on the CATCH. More specifically, the children who participated in the pilot study responded "neutral" more often than providing a positive or negative response. It appeared that students participating in the pilot study preferred to provide neutral responses, particularly for items related to topics they felt guilty about responding negatively to or items where they expressed having had

limited experience. In an attempt to encourage students to provide a response that is either somewhat positive or negative in nature, as opposed to neutral, the rating scale was administered with four response choices instead of five, removing the neutral response choice. While internal consistency values were found to be acceptable for all subscales and total scores with the exception of the cognitive subscale, it is possible that not having the option to provide a neutral response option may have impacted the results.

Future Research

Future research should continue to explore variables related to child, peer, and general education teachers that may impact the social experiences of students with ASD in the general education classroom. More specifically, future research should seek to assess more fully the attitudes that children have towards children with disabilities, and particularly students with ASD. Incorporating both general education teachers and peer factors, research should use measures of social network analysis, loneliness, and friendship qualities to assess the effectiveness of peer education regarding students with ASD as implemented by the general education teacher. Additionally, future research should explore ways for general education teachers to collaborate with other school service providers such as special education teachers, speech language pathologists, and school psychologists to determine ways to best support the social needs of high-functioning students with ASD within the general education classroom.

More research is needed to explore whether the number of friends of students with ASD and/or the social network centrality of the friends of students with ASD impact the social network or feelings of loneliness of students with ASD. While it may be expected that students with ASD with a larger number of friends and/or friends who are

more socially connected within the classroom would have higher social network status or report more social satisfaction, future research may reveal that students with ASD only need a limited number of social connections to any student within the classroom to have their social needs met. Instead of trying to increase the social connections of students with ASD or generate social connections with well-connected peers, researchers and practitioners may be able to focus on finding a small number of students within the class who share common interests and common social needs to facilitate relationships between these students and students with ASD. Such future research and practice would seek to benefit the overall social experiences of students with ASD as well as students without ASD.

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Vita

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Education

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Certificate in Developmental Disabilities June 2010	*University of Kentucky, Lexington, KY* Human Development Institute
M. S. October 2009	*University of Kentucky, Lexington, KY* Department of Educational, School, and Counseling Psychology School Psychology
B. A. May 2008 Minor	*Denison University, Granville, OH* Psychology Major, Sociology/Anthropology

Professional Positions Held/Clinical Experience

August 2013-Present	*School Psychologist, Fayette County Public Schools, Lexington, KY*
July 2012-May 2013	*Pre-doctoral Intern, Fayette County Public Schools, Lexington, KY* Supervised by Nicole Highland, Ph.D. Licensed Psychologist
Sept. 2010-May 2012	*Morton Middle School, Fayette County Public Schools, Lexington, KY* Advanced practicum supervised by Vicki Tobin, School Psychologist
Sept. 2009-May 2010	*Turner Elementary and Anderson County Middle, Anderson County, KY* Practicum student supervised by Beth Morgan and Susan Rudzik, School Psychologists

Research Experience

Jan 2010- July 2012	Research Assistant for the Autism Services Research Group, Department of School Psychology, *University of Kentucky*, Dr. Lisa Ruble, Ph.D. Licensed Psychologist
July 2008- Dec. 2009	Research assistant, *Human Development Institute, University of Kentucky*
May 2009- June 2009	Graduate assistant, *Department of School Psychology, University of Kentucky,* Dr. Lisa Ruble, Ph.D. Licensed Psychologist
Jan. 2008- May 2008	*Independent Study, Denison University, Psychology Department*
Jan. 2008- May 2008	*Research Assistant, Denison University, Department of Environmental Studies*
Jan. 2008- May 2008	*Research Assistant, Denison University, Psychology Department*
May 2007- Aug. 2007	*Anderson Summer Research Scholar, Denison University*
Aug. 2007- Dec. 2007	*Independent Study, Denison University*

Manuscripts Published

Ruble, L. A., **Birdwhistell, J. L**., Toland, M. D., & McGrew, J. (2011). Analysis of parent, teacher, and consultant speech exchanges and educational outcomes of students with autism during COMPASS consultation. *Journal of Educational and Psychological Consultation, 21*, 259-283.

Ruble, L.A., Toland, M.D., **Birdwhistell, J. L.,** McGrew, J.H., & Usher, E. (2013). Preliminary study of the Autism Self-Efficacy Scale for Teachers (ASSET). *Research on Autism Spectrum Disorder, 7* (9), 1151-1159. doi: 10.1016/j.rasd.2013.06.006.

Conference Presentations

Birdwhistell, J. L., Ruble, L. A., Toland, M. D., & Usher, E. L. (2012, May). *Psychometric properties of a newly developed teacher self-efficacy scale for teachers of students with ASD.* Poster presented at the annual convention of the International Meeting for Autism Research, Toronto, Canada.

Birdwhistell, J. L. (2011, September). *The gummy bear club for middle school students with and without disabilities.* Poster presented at the annual convention of the Kentucky Association for Psychology in the School, Lexington, KY.

Birdwhistell, J. L., Fedewa, A. L., & Sheppard-Jones, K. (2011, February). *Disabilities: Sport participation, sense of belonging, and self concept.* Poster presented at the annual convention of the National Association of School Psychologists, San Francisco, CA.

Birdwhistell, J. L., & Ruble, L. A. (2010, May). *Friendship and loneliness of students with autism spectrum disorder: Influence of social skills.* Poster presented at the annual convention of the International Meeting for Autism Research, Philadelphia, PA.

Birdwhistell, J. L., Murphy, M., & Ruble, L. A. (2010, March). *Social skills of children with autism: Parent and teacher congruence.* Poster presented at the annual convention of the National Association of School Psychologists, Chicago, IL.

Birdwhistell, J. L., & Chin-Parker, S. (2008, November). *Beyond the solution: Problem solving as category learning.* Poster presented at the annual convention of the Psychonomic Society Conference, Chicago, IL.

Honors

October 2012	Arvle and Ellen Turner Thacker Graduate Research Award, College of Education, University of Kentucky
2009- June 2012	Student Representative on the Consumer Advisory Council at the University of Kentucky Human Development Institute
2009- 2010	Student Representative on the Executive Committee for the Kentucky Association for Psychology in the Schools
Summer 2010	Nominee for the 2010 Anne Rudigier Award through the Association of University Centers on Disabilities
Summer 2010	Recipient of the Paul Kevin Burberry Award from the Human Development Institute at the University of Kentucky
Fall 2009	Recipient of the Jennie S. Ewald Scholarship Award from the Kentucky Association for Psychology in the Schools
2008	Recipient of the Irvin S. Wolf Psychology Award, Denison University
2007	Anderson Summer Research Scholar, Denison University